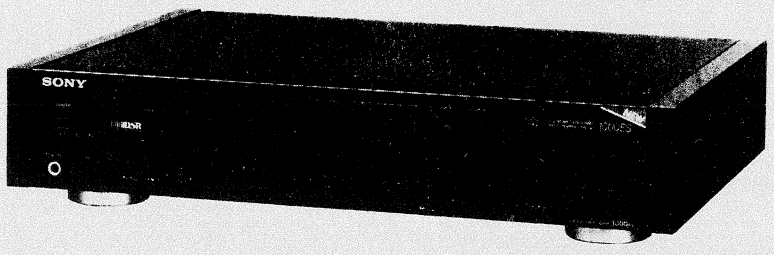
DAR-1000ES

SERVICE MANUAL

AEP Model



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DIGITALES SATELLITEN RADIO

SPECIFICATIONS

Tuner section

Input frequency range	50 MHz to 855 MHz (cable) 950 MHz to 1,750 MHz (satellite)
Input level	50 MHz to 463 MHz: 45 dBμV to 95 dBμV 463 MHz to 855 MHz: 45 dBμV to 90 dBμV 950 MHz to 1,750 MHz: 45 dBμV to 95 dBμV
FINE TUNING	50 MHz to 855 MHz: 100 kHz/step 950 MHz to 1,750 MHz: 1 MHz/step
Input impedance	75 ohms
Input connector	CABLE: IEC-male SATELLITE 1 ST IF: F-female
LNC power supply voltage	OFF/14 V/18 V, DC
LNC power supply current	200 mA max.
Digital outputs	COAXIAL OPTICAL
Distortion	0.007 % at 1 kHz
S/N	110 dB ("A" WEIGHTED)
Separation	102 dB at 1 kHz
Output impedance	500 ohms
Frequency response	15 Hz to 15,000 Hz ±0.5 dB
Sampling frequency	32 kHz
D/A converter	1 bit pulse D/A
SPEECH/MUSIC CONTROL	20 dB max. in 20 step

General

Power requirements	220-230 V, 50/60 Hz
Power consumption	32 W
Dimensions	470 x 96 x 345 mm (18 1/2 x 3 3/4 x 13 9/16 inches) (including the side panel)
Weight	7.0 kg (15 lb. 7 oz.) (including the side panel)
Supplied accessories	Remote commander RM-D1000 (1) Size R6 batteries (2) Connecting cable (1) Screws (4)

Design and specifications are subject to change without notice.

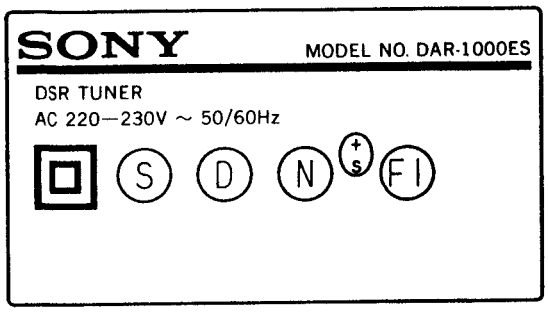
MICROFILM

DSR TUNER

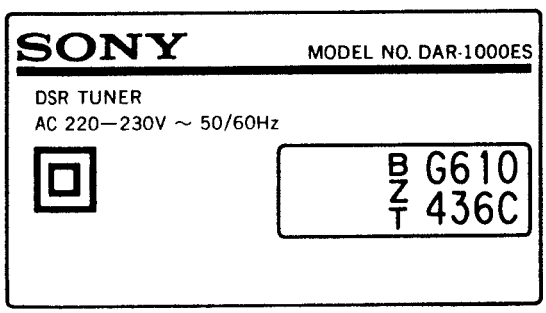
SONY®

MODEL IDENTIFICATION
—Model Number label—

AEP model:



Germany model:



SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

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This section is extracted from instruction manual.

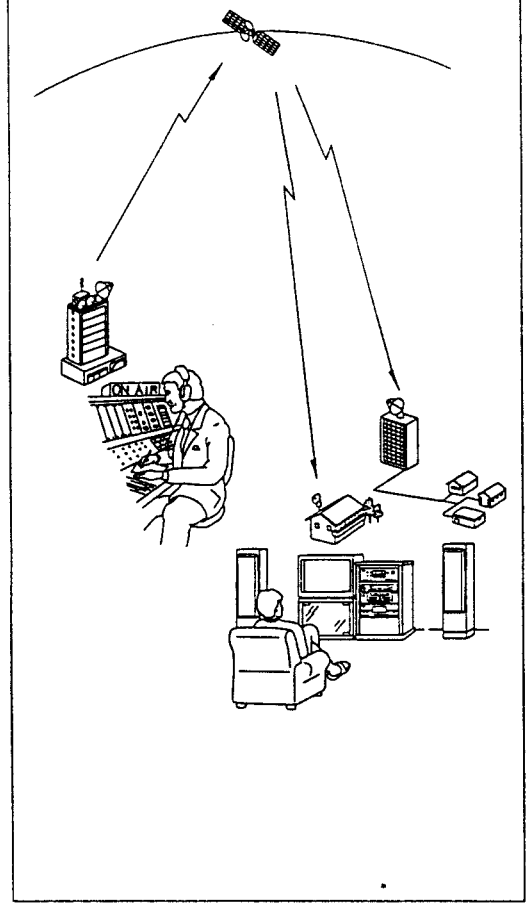
What DSR Is All About

DSR (Digital Satellite Radio) is a completely new radio broadcast system which uses satellites to transmit digital broadcast signals. Since DSR is a digital audio medium like CD and DAT, it offers significant advantages over conventional "analog" radio transmission techniques, including superior sound quality, ease of tuning and programme selection, and the availability of additional "support" information transmitted along with the programme signal.

Being a digital medium and therefore free from the effects of noise, interference, and signal degradation, DSR achieves excellent sound quality on a par with CDs with a frequency response of 0-15kHz and a dynamic range of 90 dB. Moreover, received signals can be digitally transmitted to other digital components and directly recorded on a DAT deck, for example, for unbelievably clean recordings of music broadcasts.

Unlike conventional radio transmissions which only allow one station per frequency, with DSR up to 16 stereo or 32 monaural programmes can be transmitted together on a single frequency in digital data "packets". This means you do not have to tune in a different frequency every time you want to change the programme, because all the programmes are already there. Just press a button to select the desired programme and you hear the broadcast immediately without having to wait for the tuner to tune it in. And to help you find a desired broadcast type, DSR stations transmit additional information along with the regular programme signal. This information includes "programme type" (or "PTY") data which identifies the broadcast by the type of programme.
The DAR-1000ES makes use of this feature to allow you to search for broadcasts by programme type.

Digital audio broadcasts are currently transmitted via two satellites: the "Kopernikus" and the "TV-SAT 2" or your local cable service.



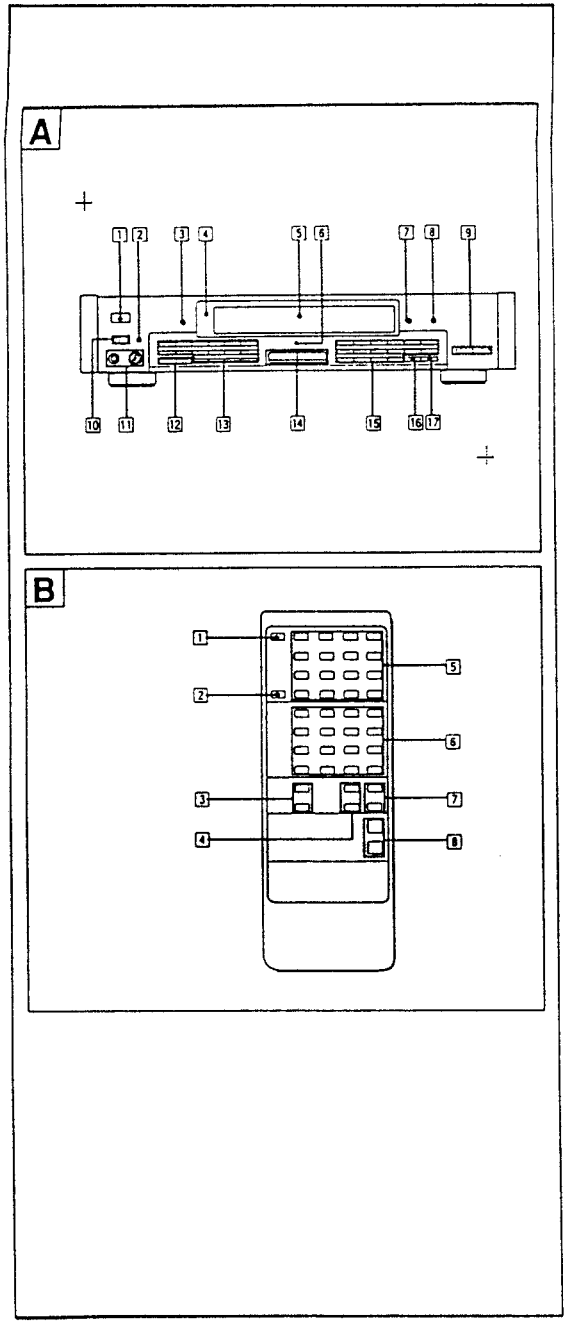
Identifying the Controls

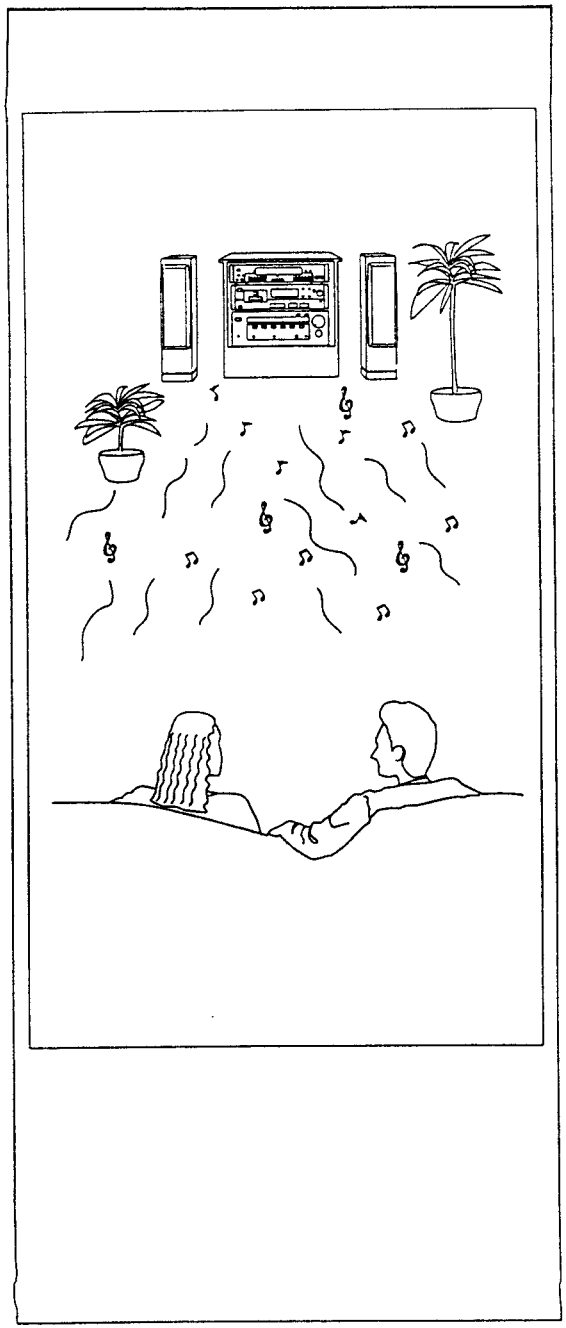
Front Panel A

1. POWER switch
2. PROGRAM CHECK button
3. DISPLAY MODE button
4. Remote sensor
5. Display window
6. MEMORY button
7. DIRECT button
8. LNC (Low Noise Converter) button
9. FINE TUNING –/+ buttons
10. PROGRAM switch
11. PHONES jack and LEVEL control
12. BALANCE MUSIC/SPEECH buttons
13. Programme type buttons
14. BLOCK –/+ buttons
15. Numeric buttons
16. MHz/CLEAR button
17. MONO MODE button

Remote Commander B

1. DISPLAY MODE button
2. MONO MODE button
3. BALANCE MUSIC/SPEECH buttons
4. FINE TUNING –/+ buttons
5. Numeric buttons
6. Programme type buttons
7. BLOCK –/+ buttons
8. CH (Channel) –/+ buttons

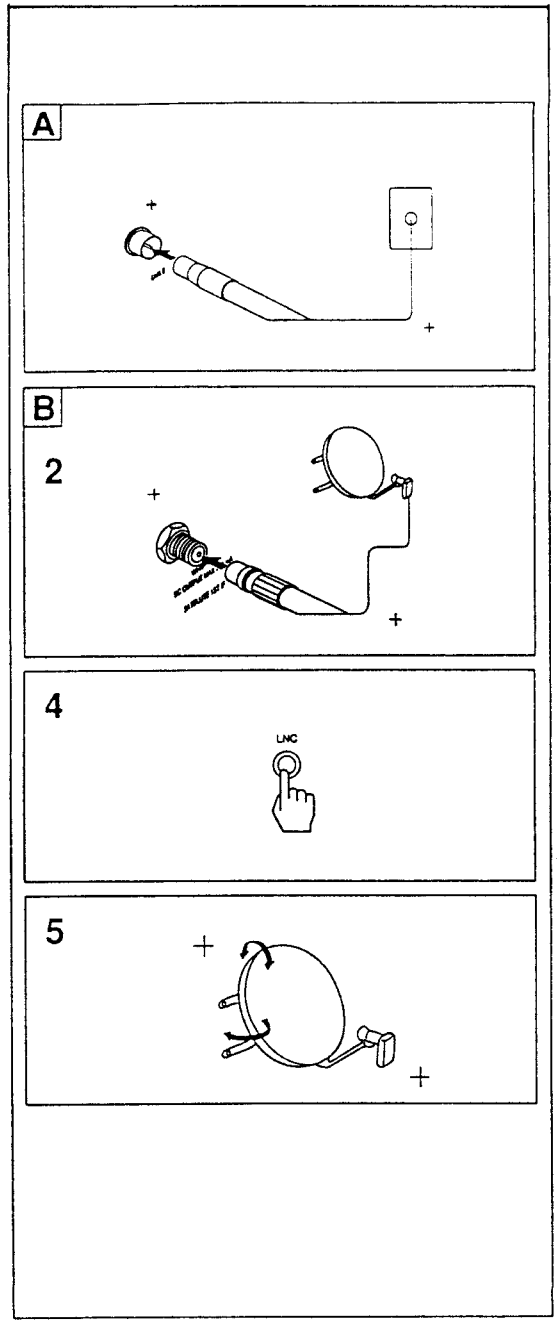




Features

The DAR-1000ES comes with a host of convenient features for your listening pleasure. Among them are:

- **Satellite antenna reception and cable service reception capability**
  Allows you to receive broadcast via satellite or cable service.
- **Coaxial and optical digital outputs**
  Enable pure digital sound recording.
- **1-bit pulse D/A converter**
  Achieves superior soud quality.
- **20 block memory with LNC setting**
  Ensures easy operation.
- **Large scale information display**
  Gives a station name and programme type in max. 13 characters in addition to other informations.



Hooking Up the System

This section describes the antenna connection and the connection to the other audio components.
For a detail, see the manual of the antenna.

Connecting a Cable System
A

Connect the antenna cord for a cable system to the INPUT CABLE jack.

Connecting a Satellite Antenna
B

1 **Install the satellite antenna outside.**

2 **Connect the antenna cord of satellite antenna to the INPUT SATELLITE 1ST IF jack.**

3 **Receive the frequency referring to "Direct Tuning" on page 20.**

4 **Select the voltage supplied to the LNC (Low Noise Converter) by pressing LNC.**

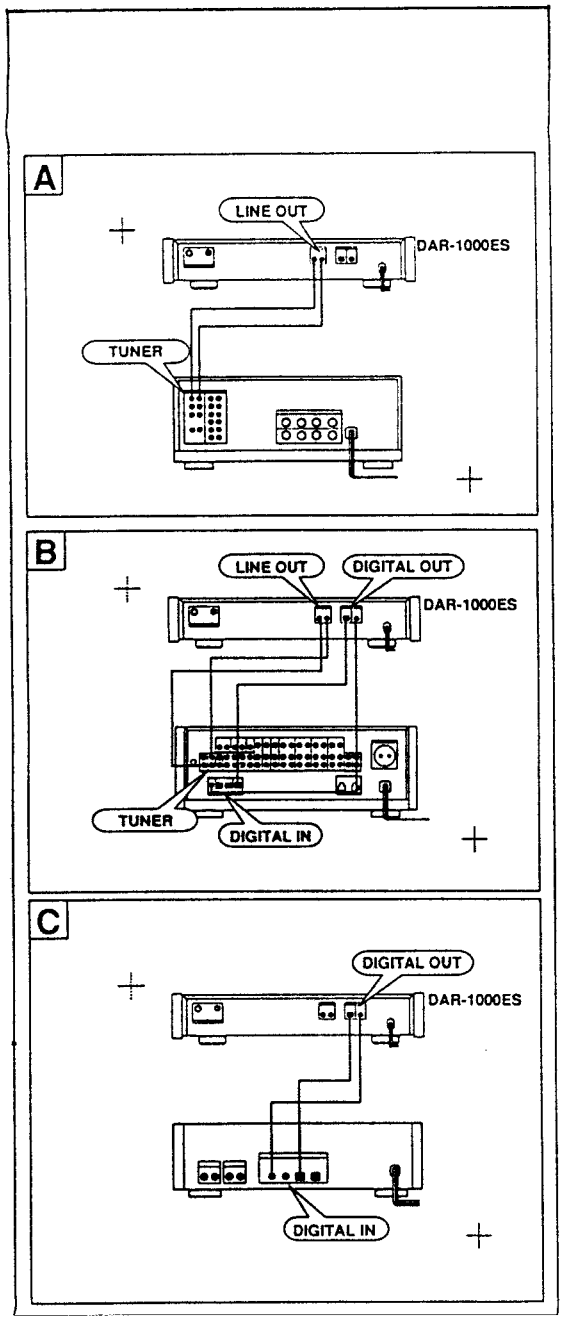
5 **Adjust the antenna direction referring to "Service area map" on page 40 and "Antenna azimuth and elevation angle list" on page 41, and while observing the signal meter.**

On the LNC button
- With the LNC button, the power supply voltage to the low noise converter can be changed.
  For selecting A, B or OFF, see the manual of the antenna.

Display	Supply voltage	Maximum current
OFF	0 V	
A	14 V	200 mA
B	18 V	

Each time LNC is pressed, the display is changed as following:
"OFF" → "A" → "B"

- The LNC setting can be changed only when "SATELLITE" is displayed.
- When the current of more than 200 mA is supplied to the antenna, this unit does not function except the POWER switch, and LNC is set to OFF automatically. ("Over load" appears on the display.) This unit will resume function after eliminating the overload.



Hooking Up the System

With the DIGITAL OUT (OPTICAL/COAXIAL)jacks, this unit can be connected to a DAT deck etc. as well as an amplifier. (The digital cord is not supplied with this unit.)

Notes

- Connect the AC power cord last. Make sure power is off.
- Cord plugs and jacks are color coded. Red plugs and jacks are for right channel (R) and white ones for left channel (L).
- Fully insert cable connectors into jacks. Loose connections may cause hum or noise.

Connecting an Amplifier

When connecting the amplifier without DIGITAL IN jack A

1 **Connect one end of the connecting cord into the LINE OUT jacks of the back of this unit.**

2 **Connect the other end of the cord into the TUNER jacks on the back of the amplifier.**

When connecting the amplifier with DIGITAL IN jack B

1 **Connect one end of the connecting cord into the LINE OUT jacks or DIGITAL OUT COAXIAL or OPTICAL jack of the back of this unit**

2 **Connect the other end of the cord into the TUNER jacks or DIGITAL IN COAXIAL or OPTICAL on the back of the amplifier.**

Digitally recording onto a DAT deck

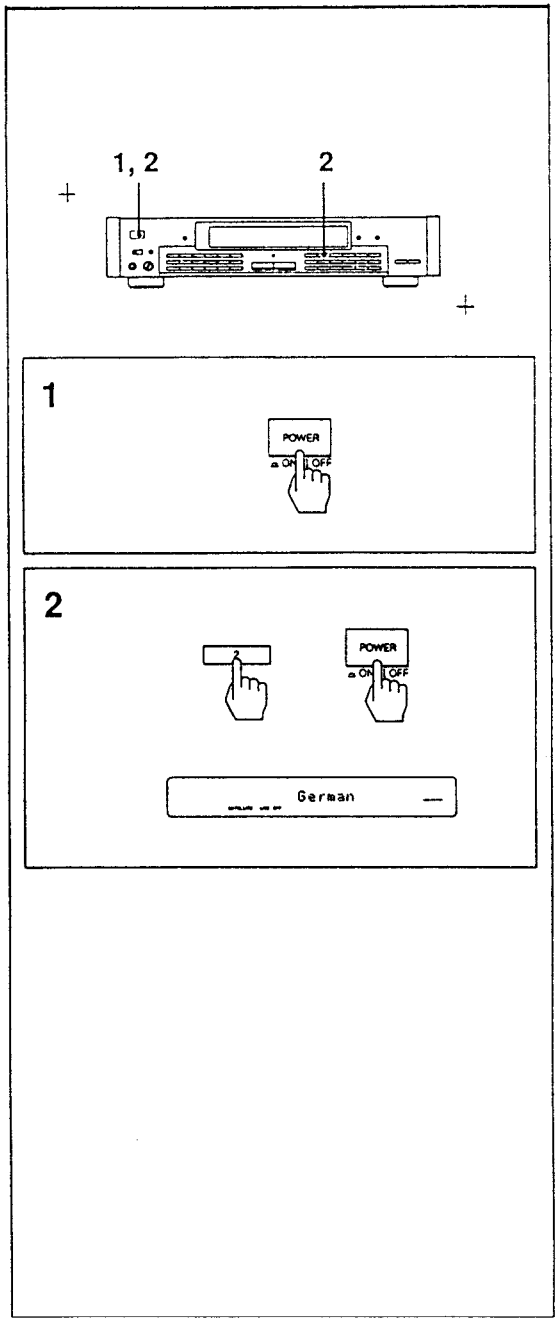
For digitally recording onto a DAT deck, connect as follows. C

1 **Connect one end of the connecting cord into the DIGITAL OUT COAXIAL or OPTICAL jack of the back of this unit.**

2 **Connect the other end of the cord into the DIGITAL IN COAXIAL or OPTICAL on the back of the DAT deck.**

Connecting Headphones

Connect the headphones to PHONES jack on the front panel and adjust the volume level with the LEVEL control.



Changing the Display

Changing the Language of the Display

You can select between English or German language displays. The factory preset language is English. To change the display to either language, perform the following procedure.

1 **Press POWER to turn the power off.**

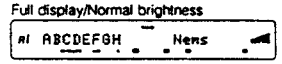
2 **Press POWER while pressing 2.** "English" or "German" appears on the display for 2 seconds to indicate the current setting. This setting remains in effect until you change it again or initialize the unit.

For the difference of the display according to the language, see "Display language" on page 43.

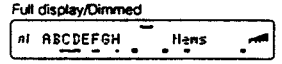
Changing the Appearance of the Display

You can change the appearance of the display with the DISPLAY MODE button. Each time you press DISPLAY MODE, the display switches as follows:

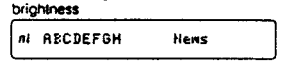
Full display/Normal brightness



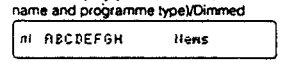
Full display/Dimmed



Minimal display (Block, channel, station name and programme type)/Normal brightness

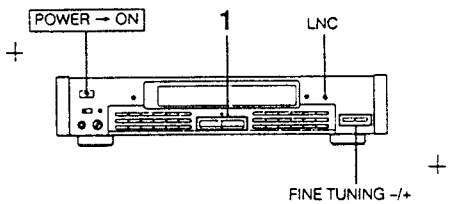


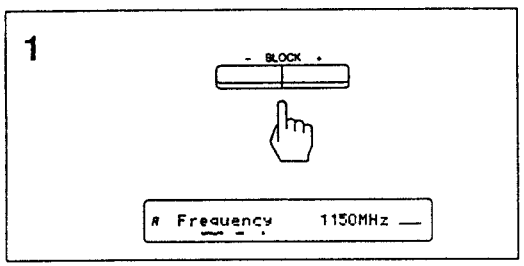
Minimal display (Block, channel, station name and programme type)/Dimmed



Note

When PROGRAM is set to SET, the display window changes to the full display/normal brightness mode automatically.





Tuning to a Frequency

There are two ways for tuning to a frequency. One is "Block tuning" and the other is "Direct tuning". As each frequency has 16 channels (16 channels in stereo mode or 32 channels in monaural mode), you have to tune to a desired frequency before selecting a channel.

Block Tuning

Block tuning allows you to select the desired frequency stored in this unit by pressing BLOCK – /+ buttons. The setting of the LNC (Low Noise Converter) is also memorized.

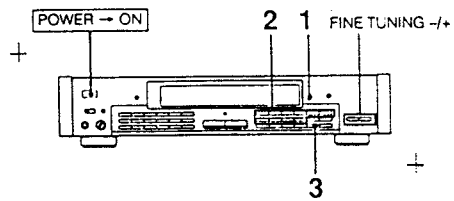
1 **Press BLOCK – or + to select the desired frequency.**
The signal meter indicates the strength of the signal and "TUNED" appears.

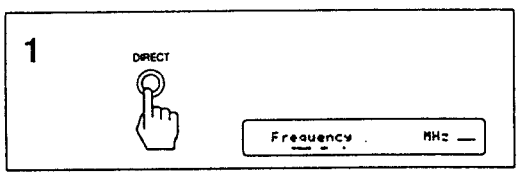
To select a channel
See pages 22 to 26.

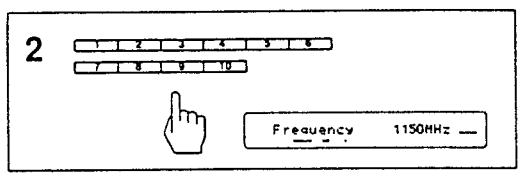
When "◄ TUNED" or "TUNED ►" appears on the display
Press FINE TUNING – or + respectively until only "TUNED" appears.
With FINE TUNING –/+, the frequency for a satellite broadcast can be adjusted at 1 MHz step and the frequency for a broadcast on a cable system can be adjusted at 0.1 MHz step.

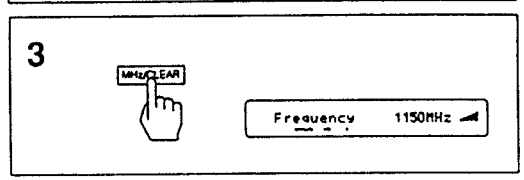
When the programme is noisy
Press FINE TUNING – or + to obtain a better receiving.

For the station names broadcasting the programme, see "Station names broadcasting DSR programme" on the back cover.









Tuning to a Frequency

Direct Tuning

Direct tuning allows you to tune in a broadcast by entering the frequency of the station with the numeric buttons.

1 **Press DIRECT.**

2 **Press the numeric buttons (1 to 10) to enter the desired frequency.**
The 10 button function as 0.
For example, to tune in 1150 MHz, press 1, 1, 5, 10.

3 **Press MHz/CLEAR.**
The signal meter indicates the strength of the signal and "TUNED" appears.

To select a channel
See pages 22 to 26.

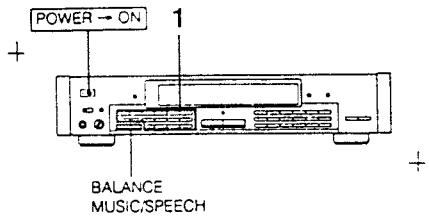
When "◄ TUNED" or "TUNED ►" appears on the display
Press FINE TUNING – or + respectively until only "TUNED" appears.
With FINE TUNING –/+, the frequency for a satellite broadcast can be adjusted at 1 MHz step and the frequency for a broadcast on a cable system can be adjusted at 0.1 MHz step.

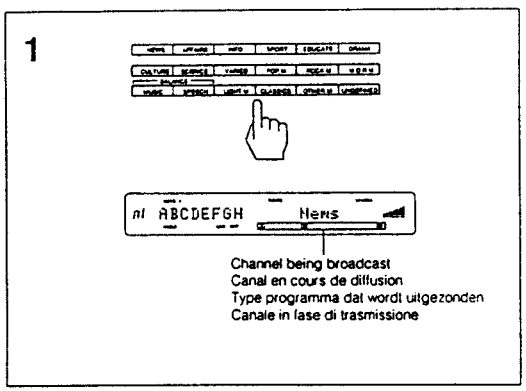
When the wrong frequency is entered
The entered frequency blinks. In this case, press DIRECT again and then enter the correct frequency.

When entering a frequency for a broadcast on a cable system
After entering the frequency with the numeric buttons, press FINE TUNING – or + to adjust the number down to a decimal point.

When the programme is noisy
Press FINE TUNING – or + to obtain a better receiving.

For the station names broadcasting the programme, see "Station names broadcasting DSR programme" on the back cover.





Selecting a Channel

There are two ways for selecting a channel. One is "Programme type selection" and the other is "Direct selection". Selecting channel can be available only when the frequency is tuned in and "TUNED" appears on the display.
When "NO DSR" appears on the display, tune in the frequency beforehand.

Programme Type (PTY) Selection

Each frequency has 16 types of programmes (See page 24). This allows you to locate a specific type of programme being broadcast.

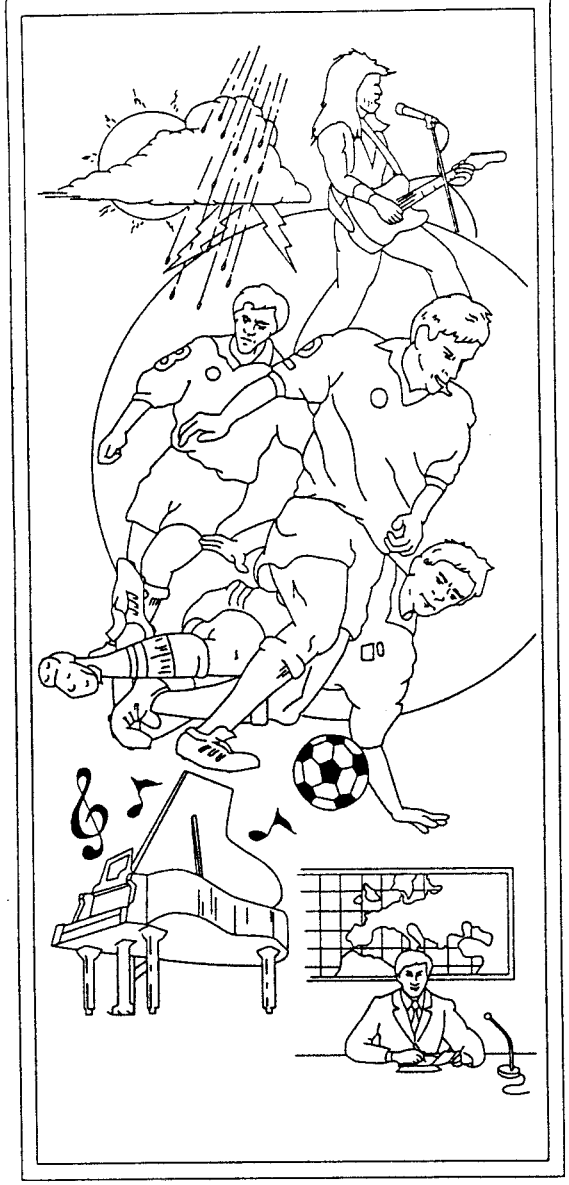
1 **Make sure that "TUNED" appears on the display and then press the desired programme type.**
The channel of the desired programme is displayed.

To select other channel
Press the desired programme type.
Each time the button is pressed, another channel is selected.

When no channel is broadcasting the desired programme
"____ not found" is displayed and no sound is heard.
However, once the broadcast of the desired programme starts on some channel, the channel will be selected automatically.

When the receiving channel starts different type of programme
Another channel displayed is selected automatically.

Adjusting the volume level
Press BALANCE MUSIC or SPEECH to adjust the volume level according to the selected programme. However, when connecting to the DIGITAL OUT jack, BALANCE MUSIC/SPEECH does not function.
The level from 0 dB to -20 dB can be adjustable.



Selecting a Channel

The programme types are as follows:

NEWS

AFFAIRS
Topical programmes which expand on the current news.

INFO (Information)
Programmes about consumer affairs, medical advice, etc. and also weather reports.

SPORT

EDUCATION
Programmes intended to educate, such as "How to" and advice programmes.

DRAMA
Radio plays and serials.

CULTURE
Programmes about national or regional culture, such as religion, language, and societal concerns.

SCIENCE
Programmes about the natural sciences and technology.

VARIED
Other types of programming, such as celebrity interviews, panel games, and comedy.

POP M (Pop music)

ROCK M (Rock music)

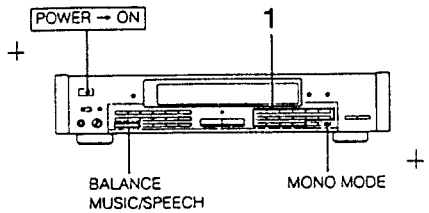
M.O.R.M
Middle of the road music ("easy listening"). Usually vocal and of short duration.

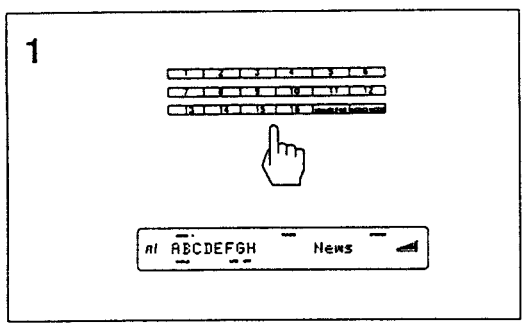
LIGHT M (Light music)
Light music for general appreciation, such as instrumental, and vocal and choral words.

CLASSICS
Performances of major orchestras, chamber music, opera, etc.

OTHER M (Other music)
Music that does not fit into any of the above categories, such as jazz, rhythm and blues, and reggae.

UNDEFINED
Any programmes not defined above.





Selecting a Channel

Direct Selection

Direct selection allows you to select a channel with the numeric button. The programme type of the selected channel is displayed in the window (See page 24.)

1 **Make sure that "TUNED" appears on the display and then press the numeric button to select desired channel.**

When the selected programme is broadcasted in the monaural mode

· Selecting the mono mode

Press MONO MODE to select MONO 1, MONO 2 or MONO 1 + 2 as described on the list below.

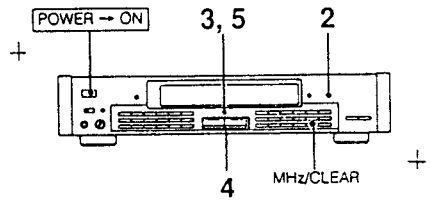
The setting of the MONO MODE will not change even after selecting another channel.

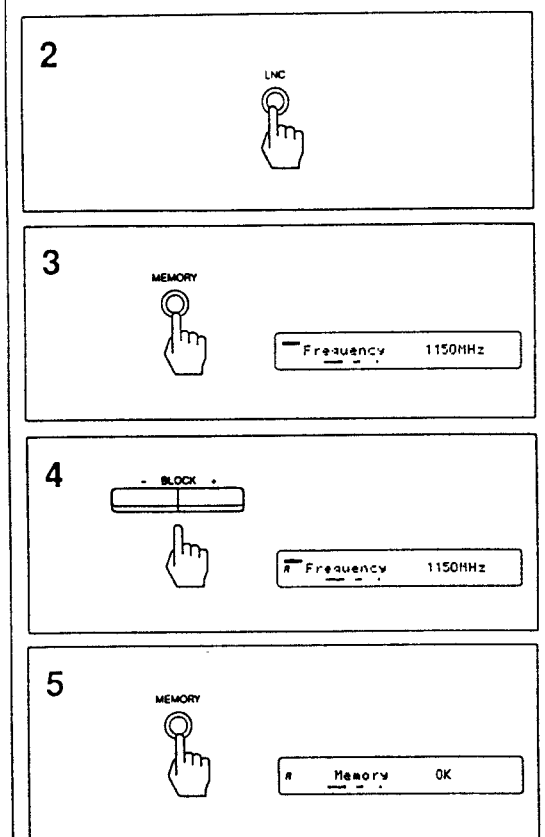
Mode \ Output	Left channel	Right channel
MONO 1	MONO 1	
MONO 2	MONO 2	
MONO 1 + 2	MONO 1	MONO 2

Adjusting the volume level

Press BALANCE MUSIC or SPEECH to adjust the volume level according to the selected programme. However, when connecting to the DIGITAL OUT jack or in the MONO 1 + 2 mode, BALANCE MUSIC/SPEECH does not function.

The level from 0 dB to -20 dB can be adjustable.





Changing Block Memory

With the BLOCK memory function, you can store up to 20 (A to T) frequencies. Also the setting of the voltage supplied to the LNC (Low Noise Converter) can be memorized.

Storing the Frequencies

1 **Tuned in the desired frequency with the "Block tuning" or "Direct tuning". (See page 18 or 20.)**

2 **When receiving the programme of satellite broadcast, select the LNC mode by pressing LNC.**

3 **Press MEMORY.**
"MEMORY" appears on the display.

4 **Press BLOCK – or + to select the alphabet to be stored.**
The selected alphabet (A to T) is displayed.

5 **Press MEMORY again.**
"Memory OK" appears and the frequency is stored.

Replacing a stored frequency

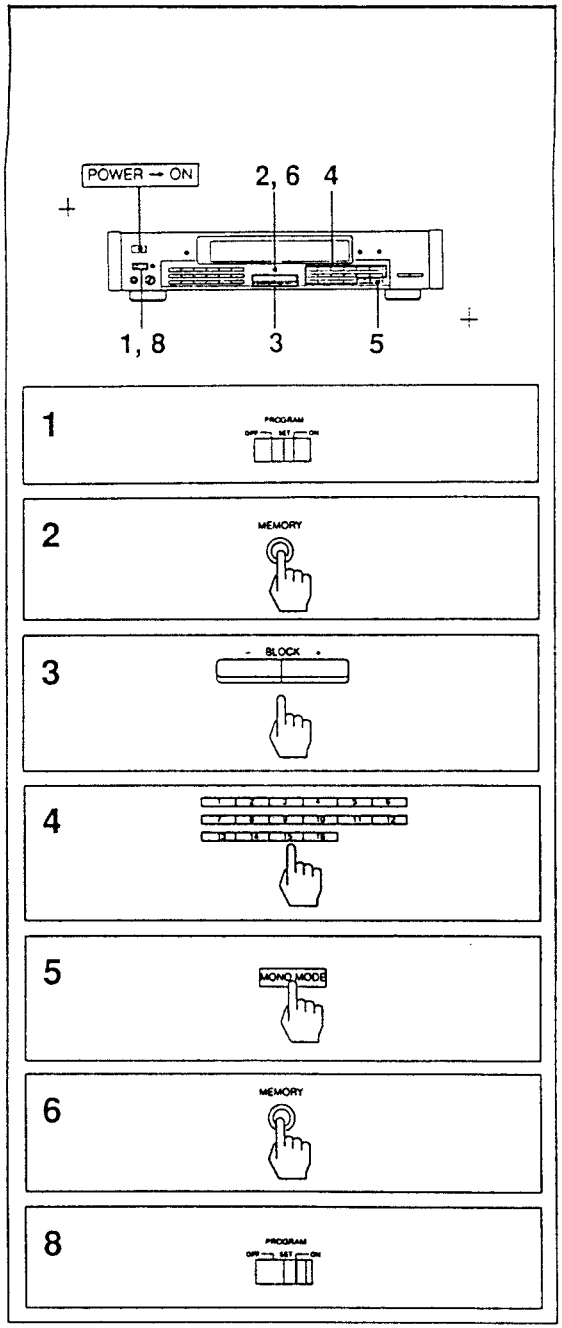
Store another frequency on the displayed alphabet to be replaced. The previously stored frequency will be erased.

Erasing the stored frequency

1 Select the frequency to be erased with BLOCK – or +.
2 Press MHz/CLEAR for about 4 seconds.

When no frequency is stored

"No block" appears on the display.



Timer Operation

With the PROGRAM selector, up to 3 programmes can be stored for timer operation. By connecting the optional audio timer to this unit, you can record or playback up to 3 programmes in desired order at the desired time. For this function, use the audio timer which can be set to control more than three on-off operations of the connected audio equipment.

Memorizing Programmes

1 **Set PROGRAM to SET.**

2 **Press MEMORY.**
"MEMORY" appears on the display.

3 **Press BLOCK – or + to select the frequency.**
The selected frequency is displayed.

4 **Press the numeric button to select the channel.**

5 **When the selected programme is broadcast in the monaural mode, press MONO MODE to select the mono mode.**

6 **Press MEMORY again.**
PROGRAM 1 appears on the display.

7 **Repeat 2 to 6 for PROGRAM 2 and 3.**

8 **Set PROGRAM to ON.**
The selected programmes will be tuned in at the desired time.

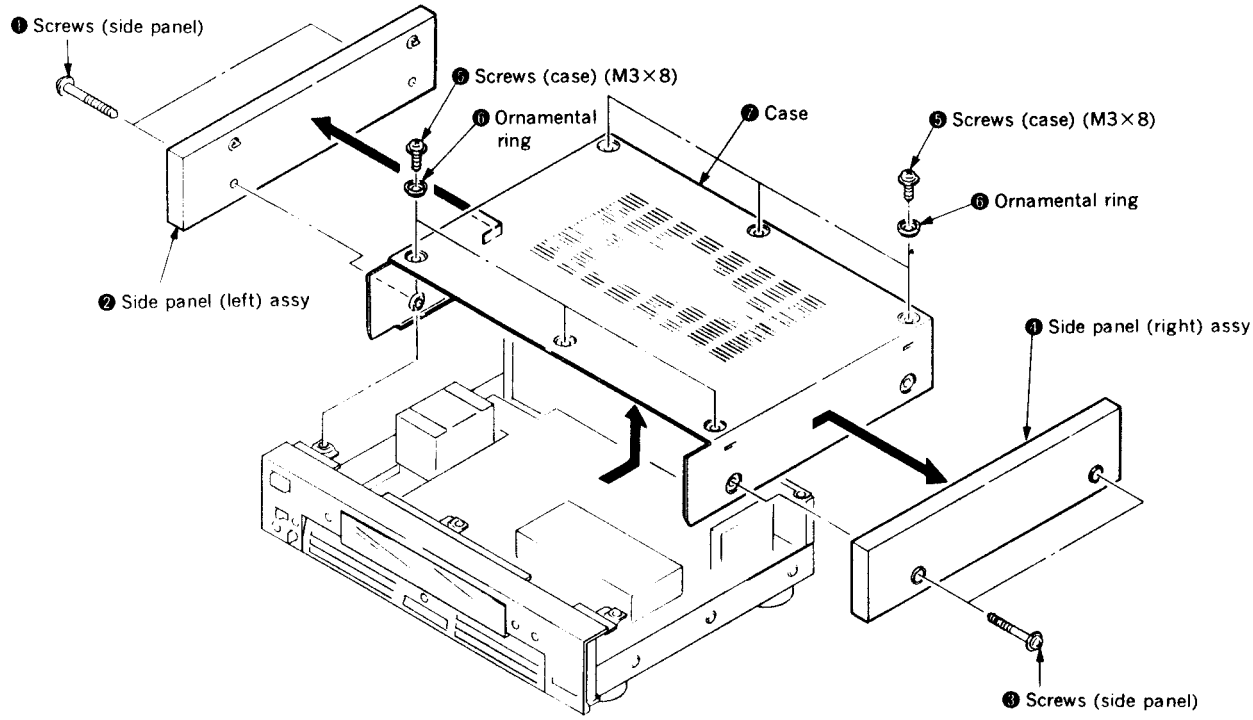
To check the programme
1 Set PROGRAM to SET.
2 Press CHECK.
The memorized programmes are displayed in the window.

Notes
- When more than 2 programmes are stored, the next programme to the last selected one will be tuned in first. For example, when 3 programmes are stored and the last selected programme is stored in PROGRAM 2, PROGRAM 3 will be tuned in first.
- If the setting of a programmes is changed, the settings of other programmes are all cleared. In this case, store the programmes again.
- When PROGRAM is set to SET, the display window changes to the full display/normal brightness mode automatically.

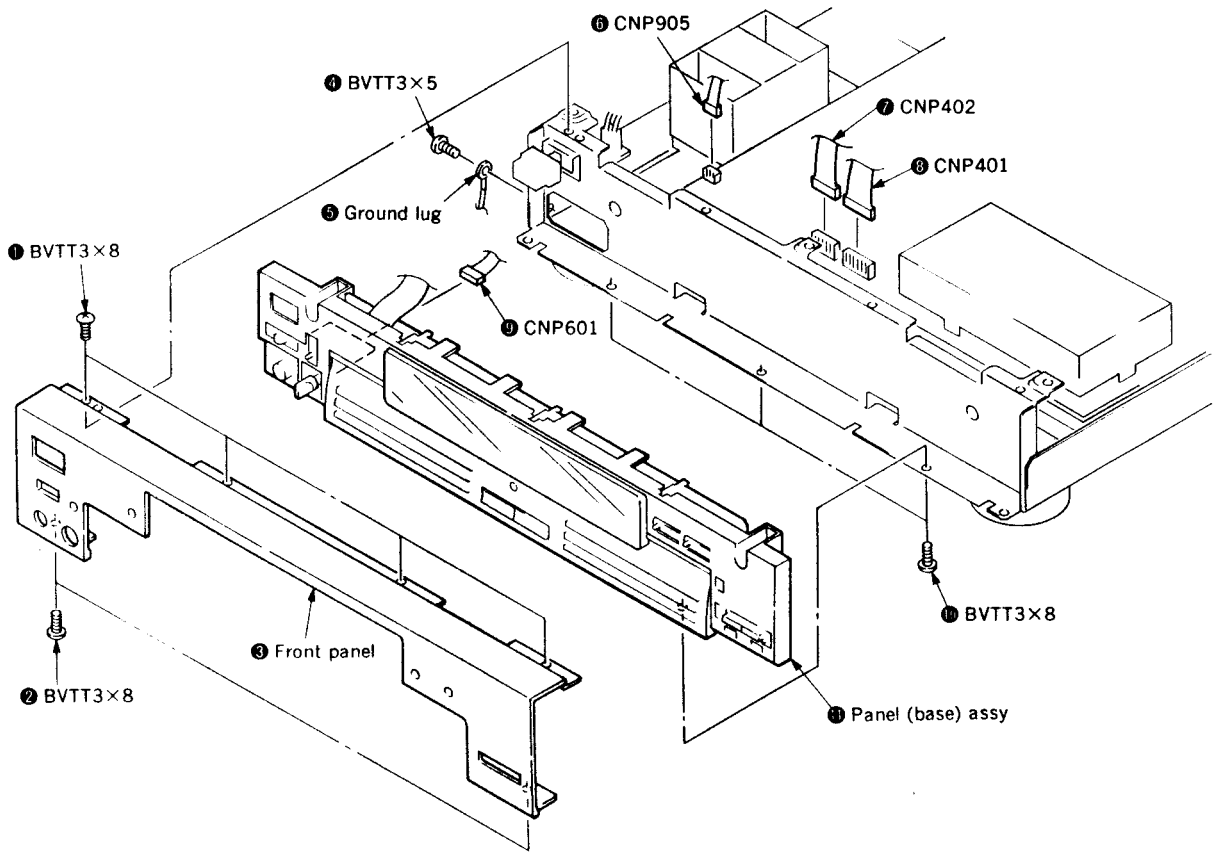
SECTION 2
DISASSEMBLY

Note : Follow the disassembly procedure in the numerical order given.

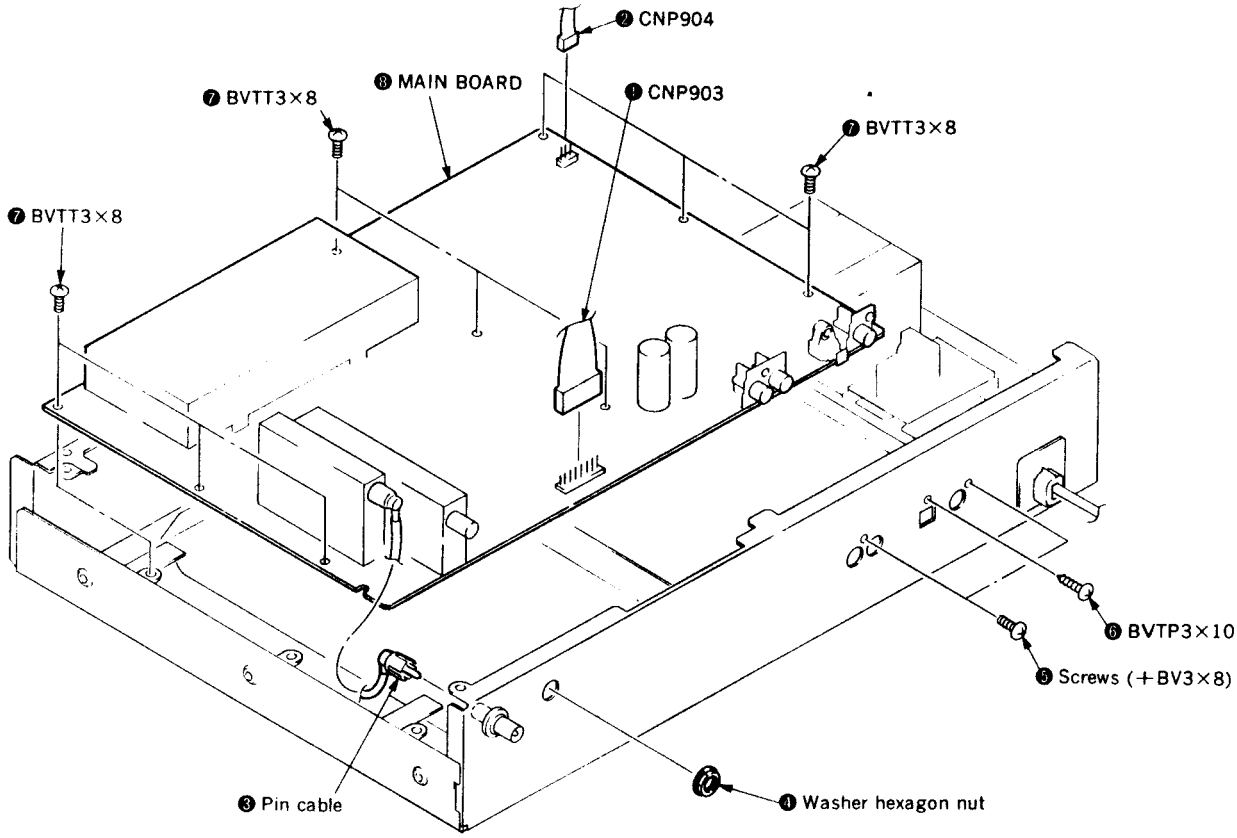
2-1. CASE



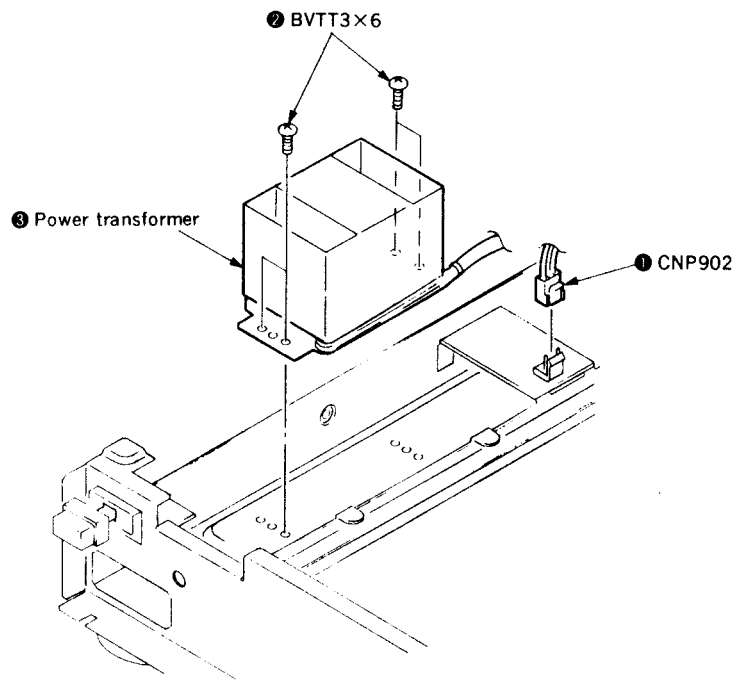
2-2. FRONT PANEL



2-3. MAIN BOARD



2-4. POWER TRANSFORMER



SECTION 3
ELECTRICAL ADJUSTMENT

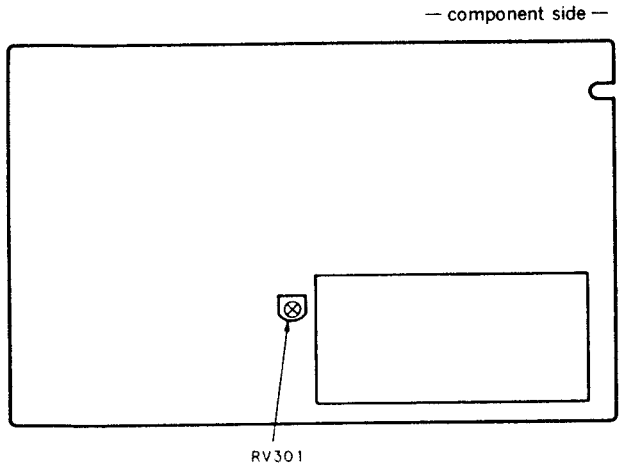
Bit Clock Adjustment (Main board)

Procedure :

1. Receive broadcast.
2. Slowly reduce the antenna input level until noise is heard.
3. Adjust RV301 so that the noise level is minimized.

Note) Special jig is required to adjust the QPSK board. Therefore, this board should not be adjusted in service.

Adjustment Location : main board



SECTION 4
DIAGRAMS

4-1. PIN FUNCTIONS

• IC601 CXD2562Q (D/A CONVERTER)

Pin No.	Pin Name	I/O	Pin Function
1	VSS2	—	Analog GND
2	L2 (+)	O	L-CH PLM output 2 (positive phase) pin
3	VSS	—	Analog GND
4	L2 (−)	O	L-CH PLM output 2 (negative phase) pin
5	VDD	—	Analog power supply (+B)
6	VDD2	—	Analog power supply (+B)
7	VSUB (A) L	—	Sub straight. Connect to GND.
8	XVDD	—	Master clock power supply (+B)
9	XOUT	—	X'tal oscillation output pin. This set is not used.
10	XIN	I	X'tal oscillation input pin
11	XVSS	—	Master clock GND
12	XVSS	—	Master clock GND
13	VSUB (A) R	—	Sub straight. Connect to GND.
14	VDD2	—	Analog power supply (+B)
15	VDD	—	Analog power supply (+B)
16	R2 (−)	O	R-CH PLM output 2 (negative phase) pin
17	VSS	—	Analog GND
18	R2 (+)	O	R-CH PLM output 2 (positive phase) pin
19	VSS2	—	Analog GND
20	VSS2	—	Analog GND
21	R1 (+)	O	R-CH PLM output 1 (positive phase) pin
22	VSS	—	Analog GND
23	R1 (−)	O	R-CH PLM output 1 (negative phase) pin
24	VDD	—	Analog power supply (+B)
25	VDD2	—	Analog power supply (+B)
26	VSUB (CHIP) R	—	Sub straight. Connect to GND.
27	VSUB (D) R	—	Sub straight. Connect to GND.
28	DVOOR	—	Digital power supply (+B)
29	$\overline{18}$/20	—	Input language length setting. H : 20bit, L : 18bit This set is fixation "H".
30	SPLM	—	L : 2CH/CHIP, H : 1CH/CHIP mode. This set is fixation "H".
31	COEF	—	Inner operation mode. Normally : "L". This set is connect to GND.
32	SYNC	—	Synchronize control pin. This set is fixation "L".
33	INIT	I	Synchronize again at wake up edge of this signal.
34	MUTER	—	R-CH PLM output mute "H" : mute This set is connect to GND.
35	MUTEL	—	L-CH PLM output mute "H" : mute This set is connect to GND.
36	LRCK1	I	LRCK input pin
37	DR1	I	R-CH data input pin
38	DL1	I	L-CH data input pin
39	BCK1	I	BCK input pin
40	512FSO	O	512FS clock output pin
41	DVSSR	—	Digital GND
42	DVSSL	—	Digital GND
43	128FS	—	128FS clock output pin. This set is not used.
44	DINIT	—	Delay INIT signal output. This set is not used.
45	INAF	—	On aberration synchronize of input/output to output "H". This set is not used.
46	LRCK0	—	LRCK output. This set is not used.
47	DR0	—	R-CH noise shaping output data. This set is not used.
48	DL0	—	L-CH noise shaping output data. This set is not used.
49	DM1/SDLO	—	Dither designation. Normally "L". This set is connect to GND.
50	DM2/SDRO	—	Dither designation. Normally "L". This set is connect to GND.

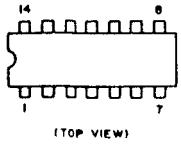
Pin No.	Pin Name	I/O	Pin Function
51	DPOI/BCKO		Dither polarity. Normally "L". This set is connect to GND.
52	DATAOUT ON/OFF	—	Test pin. Normally "L". This set is connect to GND.
53	TEST1	—	Test pin. Normally "L". This set is connect to GND.
54	TEST2	—	Test pin. Normally "L". This set is connect to GND.
55	TEST3	—	Test pin. Normally "L". This set is connect to GND.
56	DVDDL	—	Digital power supply (+B)
57	VSUB (D) L	—	Sub straight. This set is connect to GND.
58	VSUB (CHIP) L	—	Sub straight. This set is connect to GND.
59	VDD2	—	Analog power supply (+B)
60	VDD	—	Analog power supply (+B)
61	L1 (−)	O	L-CH PLM output 1 (negative phase) pin
62	VSS	—	Analog GND
63	L1 (+)	O	L-CH PLM output 1 (positive phase) pin
64	VSS2	—	Analog GND

• IC701 μPD75108GF-S36-3BE (DISPLAY CONTROL)

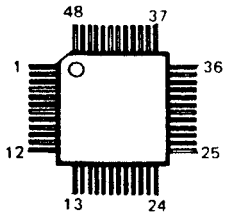
Pin No.	Pin Name	I/O	Pin Function
1, 2	DBS5, DBS4	I/O	4bit input/output port (PORT4)
3—6	DBS3—DBS0	I/O	4bit input/output port (PORT5)
7	$\overline{\text{RESET}}$	I	System • reset input pin (Low • level • active)
8, 9	X2, X1	—	System • clock oscillation ceramic connect pin
12, 13	OUT5, OUT4	I/O	Programmable 4bit input/output port (PORT6)
14—17	OUT3—OUT0	I/O	4bit input/output port (PORT7)
18—21	IN7—IN4	I/O	4bit input/output port (PORT8)
22—25	IN3—IN0	I/O	4bit input/output port (PORT9)
26	VSS	—	Analog GND
30	SIRCS	I	Edge detection vector wedge input pin
34	PGM	I	Thresh hold voltage variable 4bit • analog input port
37	FLGDATA	I/O	4bit input/output port (PORT2)
38	FLDCLK	I/O	
39	FLCLEAR	I/O	
40	FLSTB	I/O	
42	FLSDATA	I/O	4bit input port (PORT0)
43	$\overline{\text{FLSCLK}}$	I/O	
44	POWER	I	
57	NC	—	No connect
58	VDD	—	Analog power supply (+B)
59	NCK	I/O	Programmable 4bit input/output port (PORT3)
60	REQ	I/O	
61	STB	I/O	
62	ACK	I/O	
63, 64	DBS7, DBS6	I/O	4bit input/output port (PORT4)
10, 11, 27—29, 31—33, 35, 36, 41, 45—56	—	—	Analog GND

4-2. SEMICONDUCTOR LEAD LAYOUTS

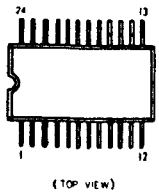
CXA1125P
SN74HCU04AN
SN74HC00AN
SN74HC393AN



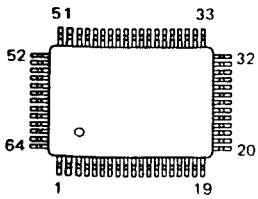
CXA1724Q



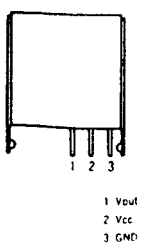
CXD2560M



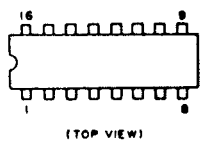
CXD2562Q
CXD8423Q
μPD75108GF-S36-3BE



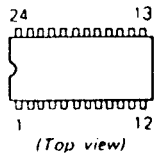
GP1U52XB



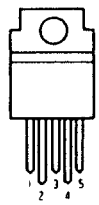
HA11440A



LC7218



L780S15
L780S18



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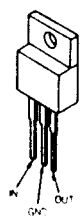
TA7805S
TA7812S



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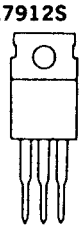
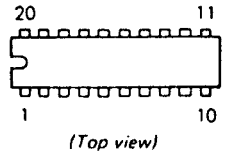
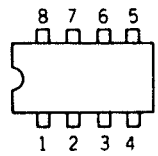


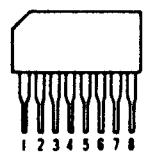
M54939SP



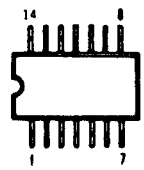
NJM4560D-D
RC5532DD



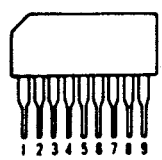
NJM4580L



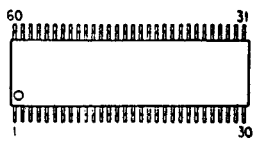
SN74HCU04ANS



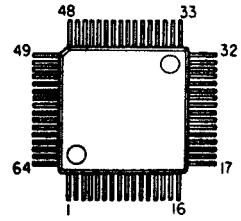
TC5081AP



TD62C950RF



μPD78013GC-504-AB8



BN1L3Z-K
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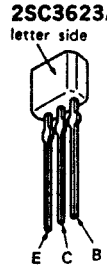
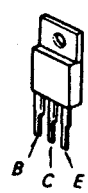
DTA124ES
DTC114ES
2SC2458-YGR
2SC2603-EF
2SC2668-R

2SA1175-HFE
2SC3623A-LK



2SC2878-AB

2SD2012



2SK241-GR

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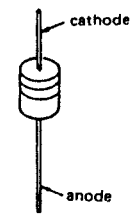
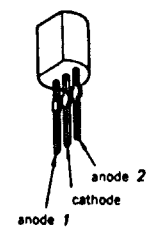
HZS6C3L
HZS30-2L
UZ-4.7BSB
UZL-36M



KV1310



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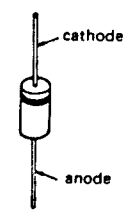
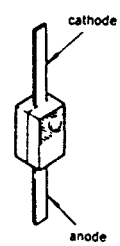
1N4148M
10E2



1T32A
1T33



• Semiconductor Location

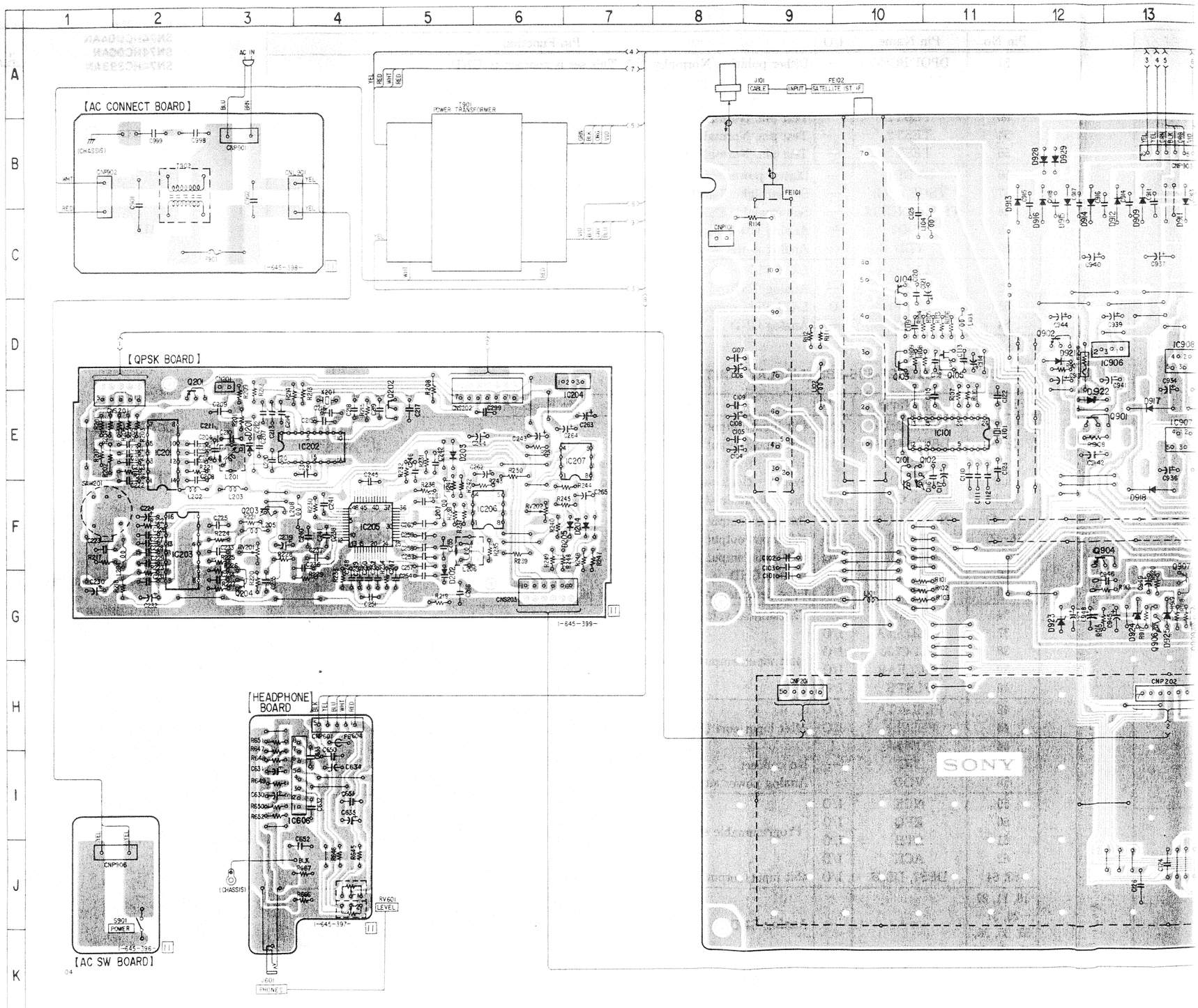
Ref. No.	Location	Ref. No.	Location
D201	E-3	IC401	J-18
D202	G-5	IC402	J-15
D203	E-5	IC501	H-18
D204	F-7	IC502	I-20
D205	F-7	IC503	I-20
D301	I-16	IC504	G-20
D302	I-16	IC505	B-20
D303	I-16	IC506	B-19
D401	J-19	IC601	G-18
D402	I-19	IC602	E-19
D403	J-20	IC603	E-18
D501	H-20	IC604	D-19
D601	B-19	IC605	D-18
D901	B-15	IC606	I-14
D902	B-16	IC901	D-17
D903	B-16	IC902	D-16
D904	B-15	IC903	D-17
D905	C-14	IC904	E-16
D906	C-15	IC905	E-15
D907	C-14	IC906	D-13
D908	C-14	IC907	E-13
D909	C-13	IC908	D-13
D910	C-14		
D911	C-13	Q101	E-10
D912	C-13	Q102	E-10
D913	C-12	Q103	D-10
D914	C-12	Q104	D-10
D915	C-12	Q105	D-11
D916	C-12	Q201	E-2
D917	E-13	Q202	E-5
D918	F-13	Q203	F-3
D919	E-14	Q204	G-3
D920	E-14	Q501	G-20
D921	D-12	Q502	G-20
D922	E-12	Q601	C-17
D923	G-12	Q602	B-18
D924	G-13	Q603	B-18
D925	G-13	Q604	E-17
D926	G-14	Q605	E-17
D927	G-14	Q606	B-19
D928	B-12	Q607	B-17
D929	B-12	Q608	D-17
		Q901	E-12
IC101	E-11	Q902	D-12
IC201	E-2	Q903	E-14
IC202	E-4	Q904	F-12
IC203	F-2	Q905	G-14
IC204	D-7	Q906	G-13
IC205	F-4	Q907	G-13
IC206	F-6	Q908	G-14
IC207	E-7	Q909	G-13
IC301	H-16	Q910	G-14
IC302	I-15		

Note:

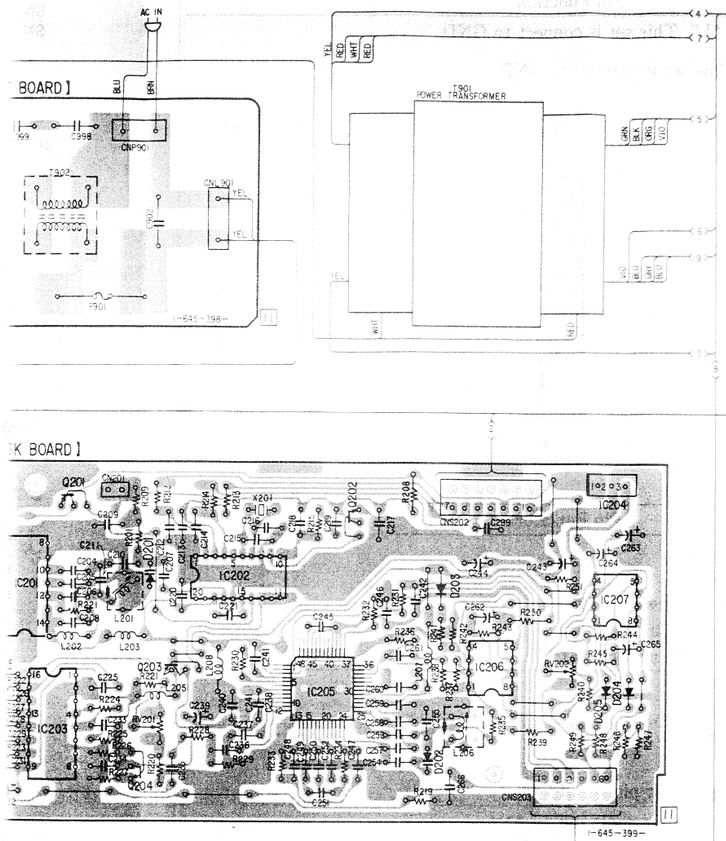
- ○—— : parts extracted from the component side.
- ■ : parts mounted on the conductor side.
- ⊹ indicates side identified with part number.

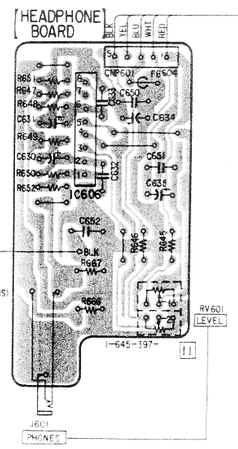
4-3. PRINTED WIRING BOARDS — MAIN SECTION —

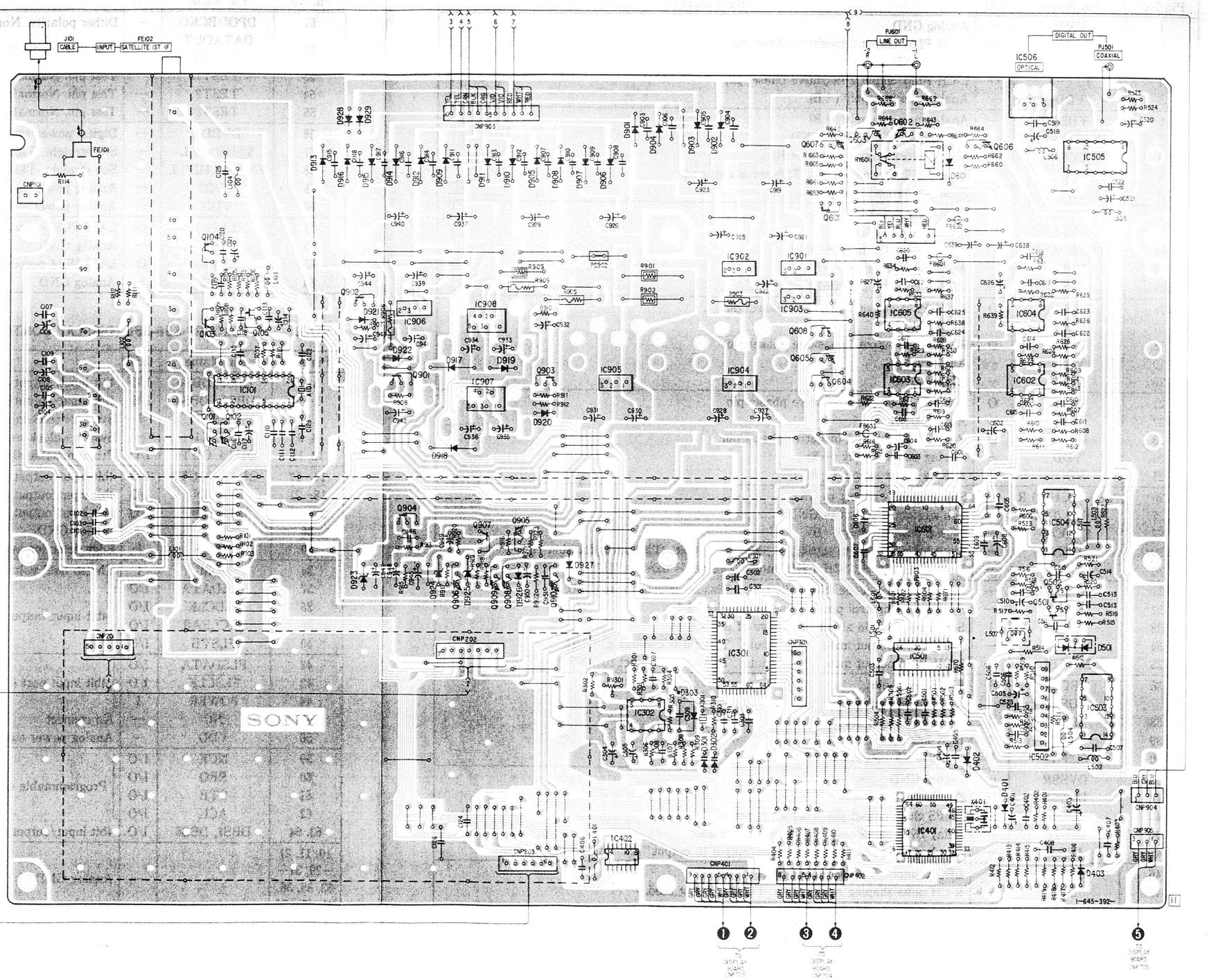
• Refer to page 15 for Semiconductor Lead Layouts.



2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21







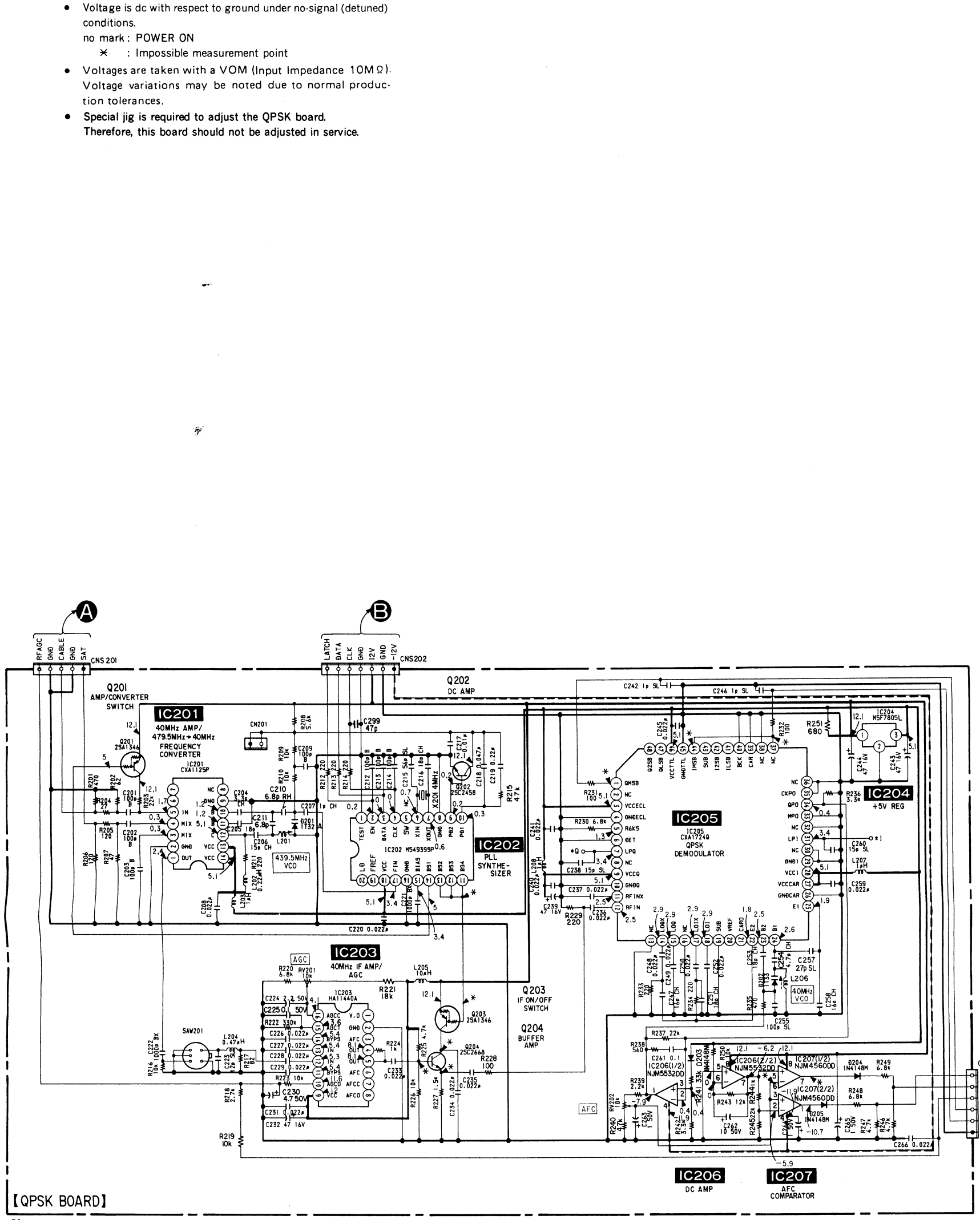
4-4. SCHEMATIC DIAGRAM — MAIN SECTION — • Refer to page 32 for IC Block Diagrams.

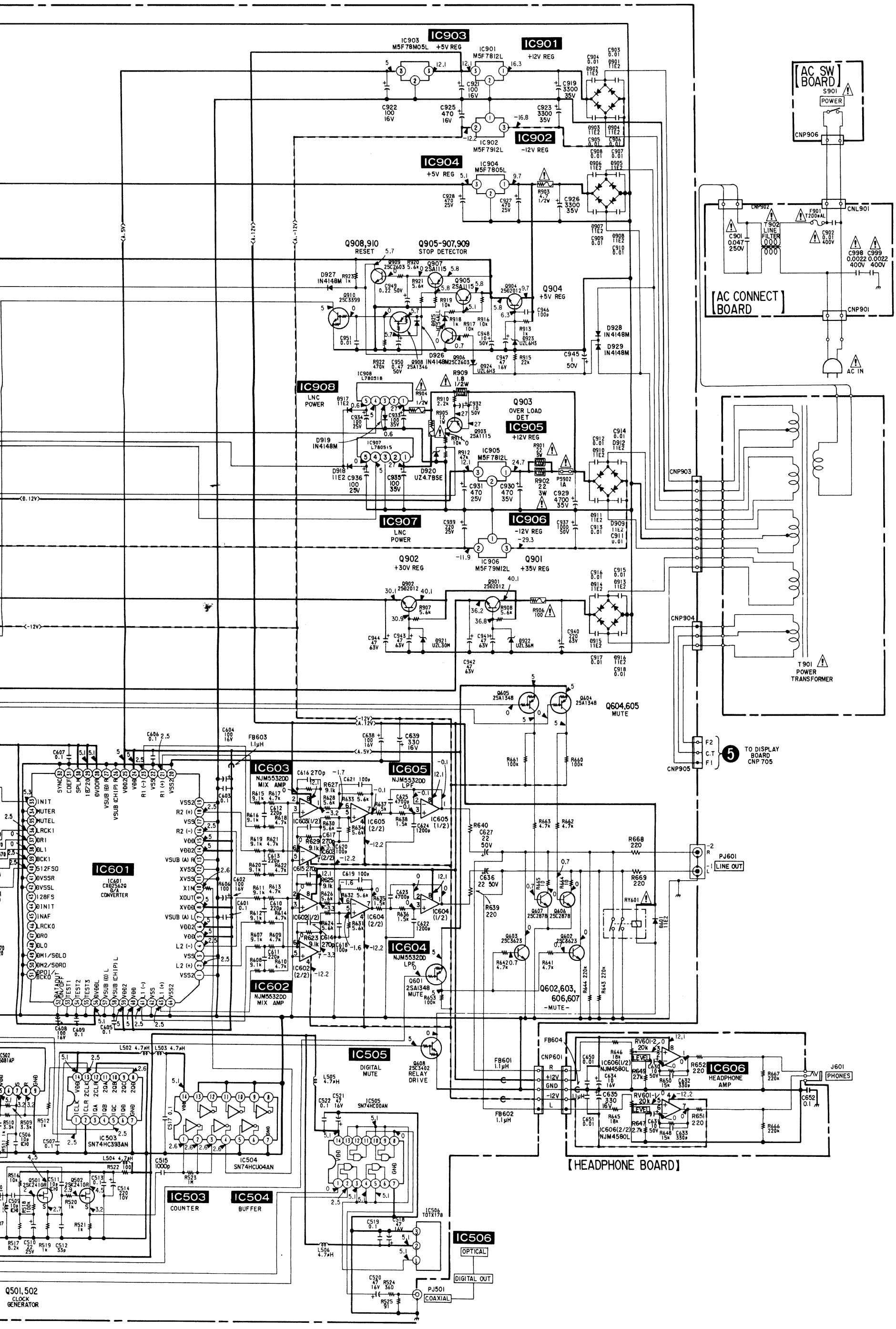
Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- △ : internal component.
- : nonflammable resistor.
- : fusible resistor.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

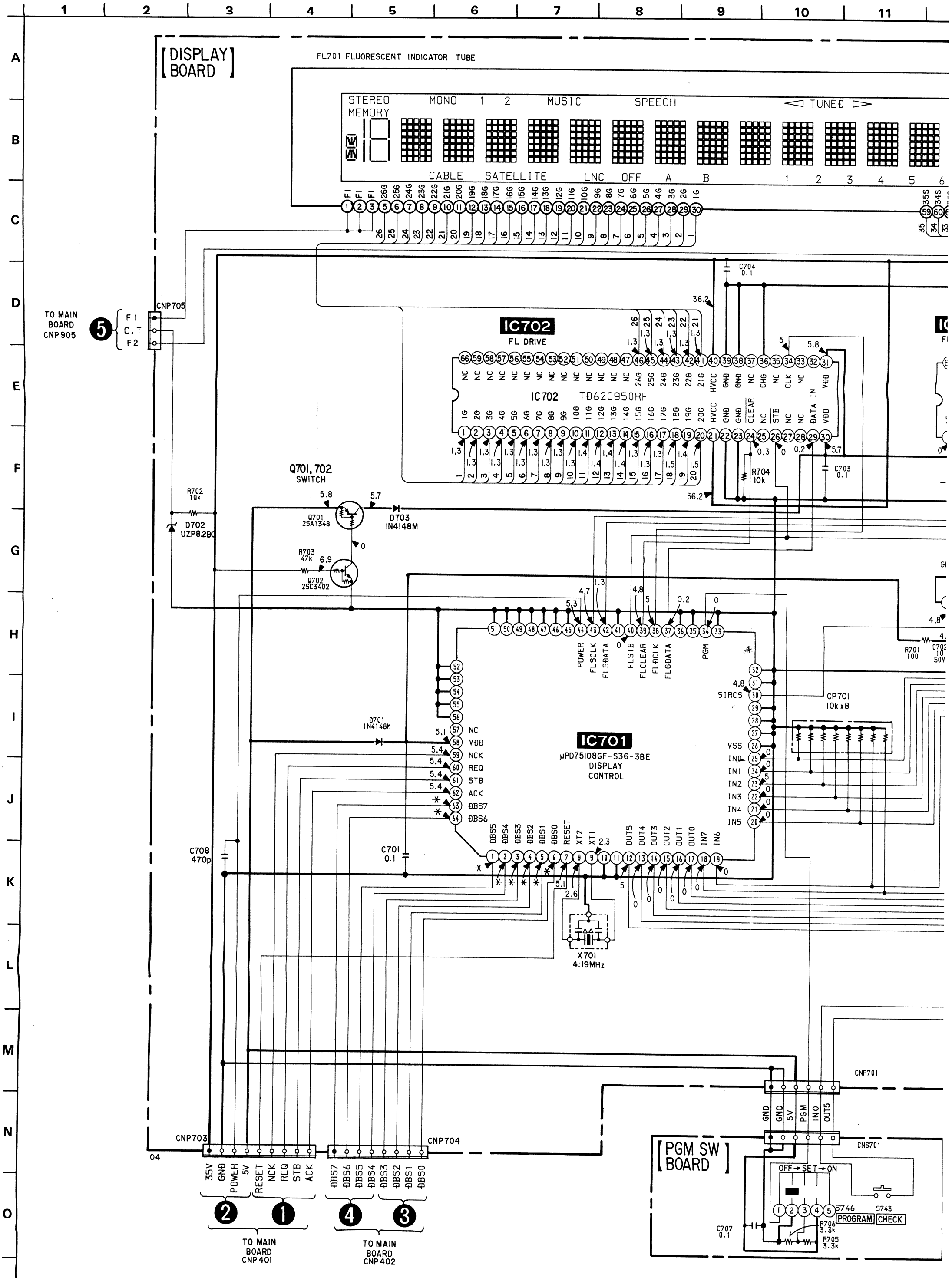
- : B+ Line
- : B− Line
- : adjustment for repair.
- Voltage is dc with respect to ground under no-signal (detuned) conditions.
  no mark : POWER ON
  ✳ : Impossible measurement point
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- **Special jig is required to adjust the QPSK board. Therefore, this board should not be adjusted in service.**




IC903
IC903 M5F78M05L +5V REG
IC901
IC901 M5F7812L +12V REG
IC902
IC902 M5F7912L -12V REG
IC904
IC904 M5F7805L +5V REG
Q908,910 RESET
Q905-907,909 STOP DETECTOR
Q904 +5V REG
IC908 LNC POWER
Q903 OVER LOAD DET
IC905 +12V REG
IC907 LNC POWER
IC906 -12V REG
Q902 +30V REG
Q901 +35V REG
Q604,605 MUTE
IC603 NJM5532DD MIX AMP
IC605 NJM5532DD LPF
IC604 NJM5532DD LPF
IC602 NJM5532DD MIX AMP
IC601 CX02562Q D/A CONVERTER
IC505 DIGITAL MUTE
IC503 SN74HC393AN
IC504 SN74HC04AN
IC503 COUNTER
IC504 BUFFER
IC506 OPTICAL
Q501,502 CLOCK GENERATOR
Q601 2SA1348 MUTE
Q602,603, 606,607 -MUTE-
IC606 HEADPHONE AMP
【HEADPHONE BOARD】
【AC SW BOARD】
【AC CONNECT BOARD】
CNP906
CNP907
CNL901
CNP901
CNP903
CNP904
CNP905
T901 POWER TRANSFORMER
TO DISPLAY BOARD CNP 705
PJ601 LINE OUT
J601 PHONES
PJ501 COAXIAL
DIGITAL OUT
AC IN
POWER
RY601

【MAIN BOARD】

4-5. SCHEMATIC DIAGRAM — DISPLAY SECTION —



TUNED MONO 2 MUSIC SPEECH PROGRAM 1 2 3

C706 0.1

36.2

IC703
FL DRIVE

IC703 TD62C950RF

C703 0.1

C705 0.1

IC704
GP1U52XB

IC704
SIRCS
RECEIVER

R701 100

C702 10 50V

CP701
10k x8

S701 S702 S703 S704 S705 S706 S707 S708
S709 S710 S711 S712 S713 S714 S715 S716
NEWS AFFAIRS INFO SPORTS EDUCATE DRAMA CULTURE SCIENCE
S717 S718 S719 S720 S721 S722 S723 S724
VARIED POP M ROCK M M.O.R. M LIGHT M CLASSICS OTHER M UNDEFINED
S725 S726 S727 S728 S729 S730 S731 S732
DISPLAY MODE MEMORY MHz /CLEAR BLOCK + BLOCK -
S733 S734 S735 S736 S737
DIRECT LNC BALANCE MUSIC BALANCE SPEECH MONO MODE
S738 S739 S740 S741 S742

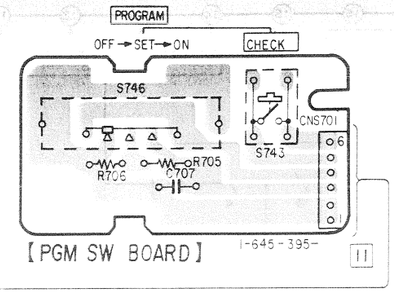
CNP702
IN5
IN6
OUT5

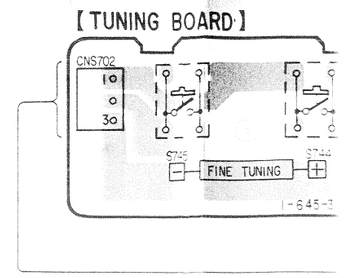
CNS702

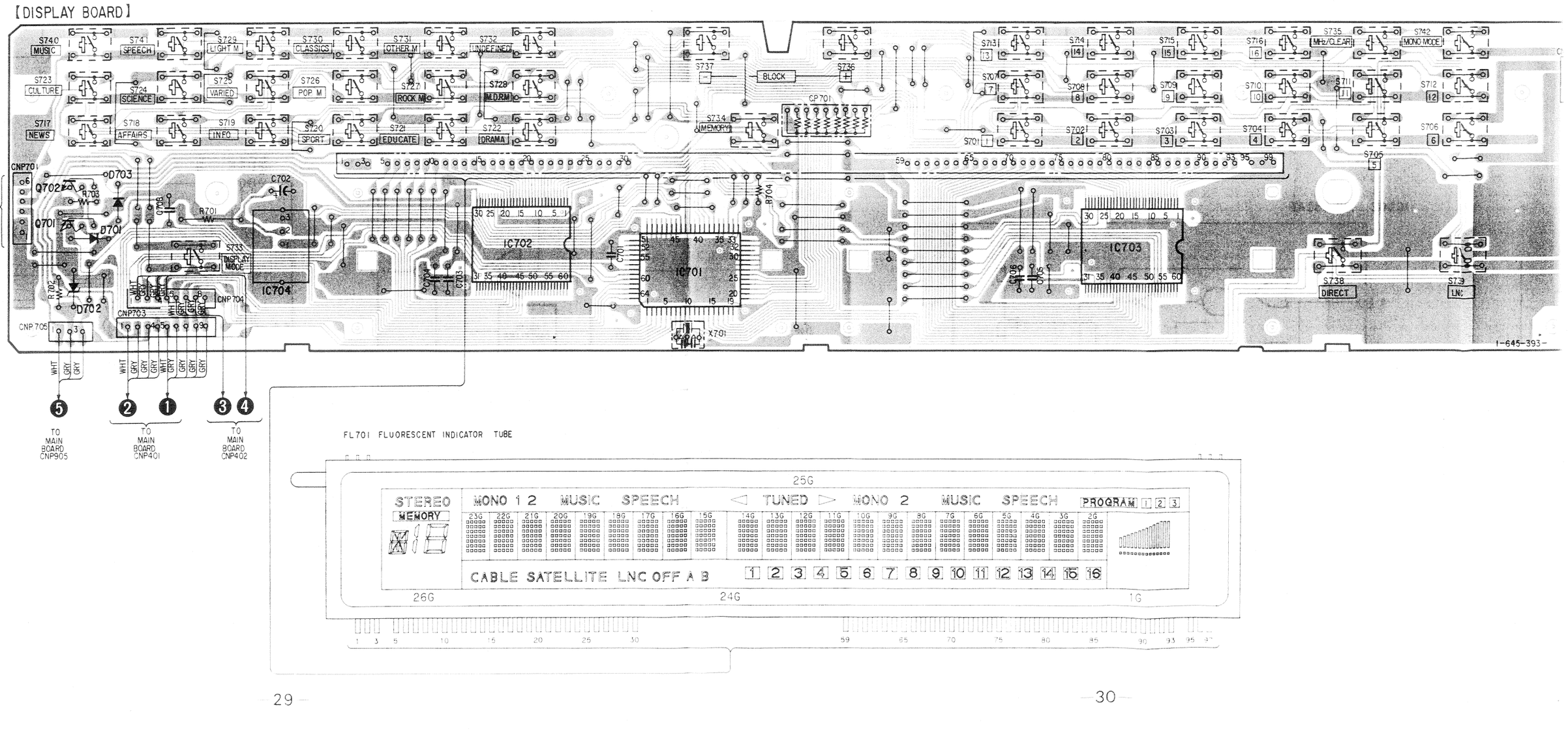
[TUNING BOARD]
S744 (+)
FINE TUNING
S745 (-)

CNP701
GND GND 5V PGM IN0 OUT5

CNS701
OFF→SET→ON
S746 S743
PROGRAM CHECK
R706 3.3k
R705 3.3k



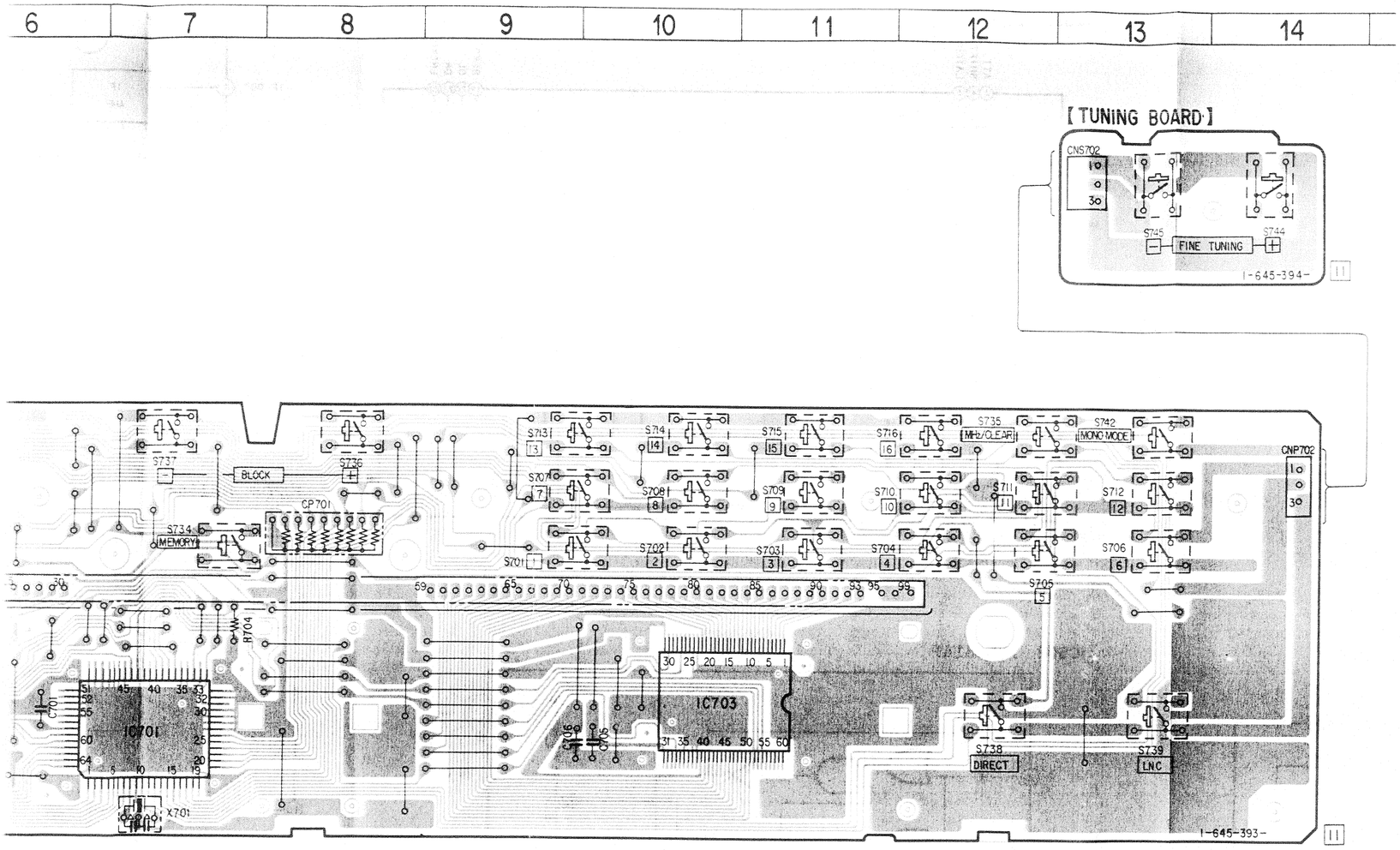


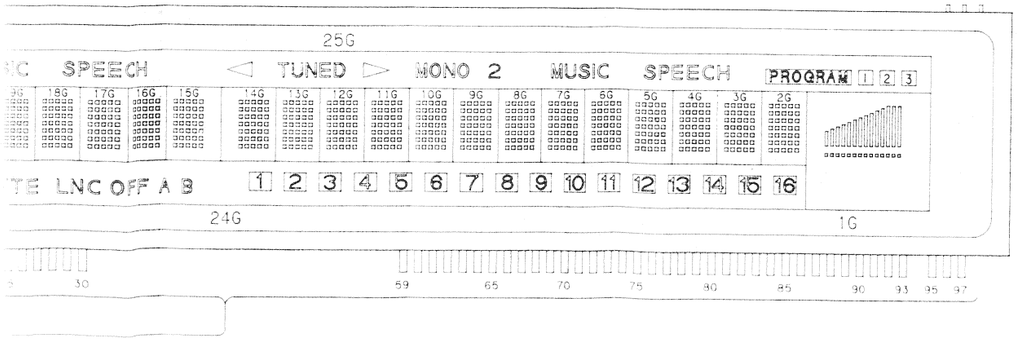


FL701 FLUORESCENT INDICATOR TUBE

25G
STEREO
MEMORY
MONO 1 2 MUSIC SPEECH
TUNED
MONO 2 MUSIC SPEECH
PROGRAM 1 2 3
23G 22G 21G 20G 19G 18G 17G 16G 15G
14G 13G 12G 11G 10G 9G 8G 7G 6G 5G 4G 3G 2G
CABLE SATELLITE LNC OFF A B
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
26G
24G
1G

youts.





• Semiconductor Location

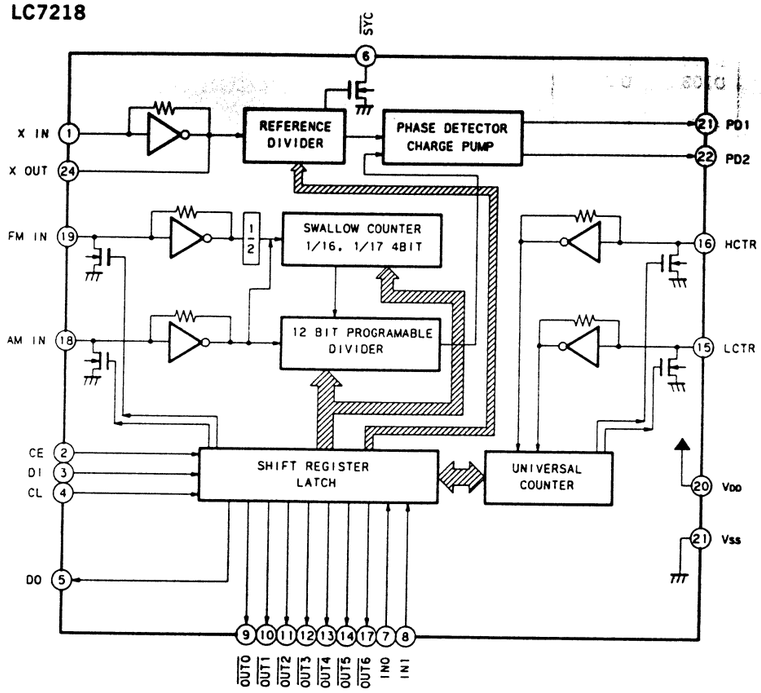
Ref. No.	Location
D701	E-2
D702	E-2
D703	D-2
IC701	E-7
IC702	E-5
IC703	E-10
IC704	E-3
Q701	D-2
Q702	D-2

Note:

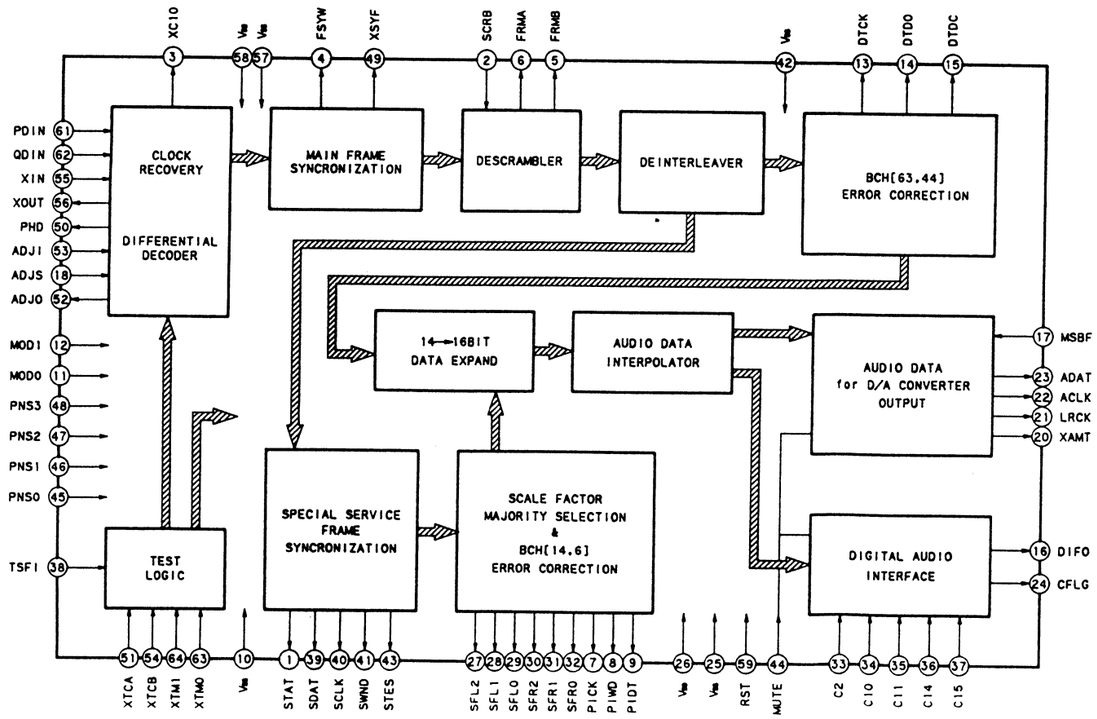
• ○—— : parts extracted from the component side.

• IC Block Diagrams

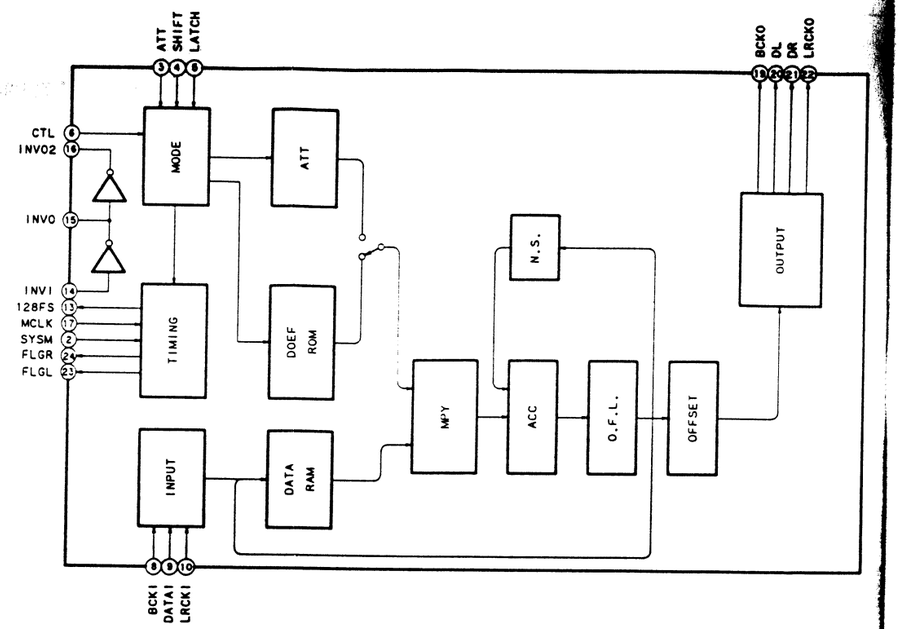
IC101 LC7218



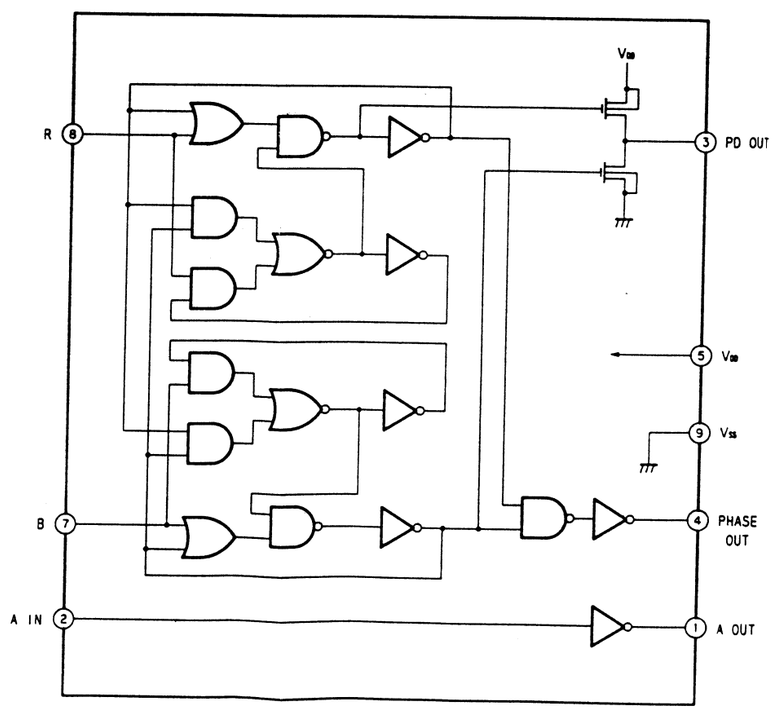
IC301 CXD8423Q



IC501 CXD2560M

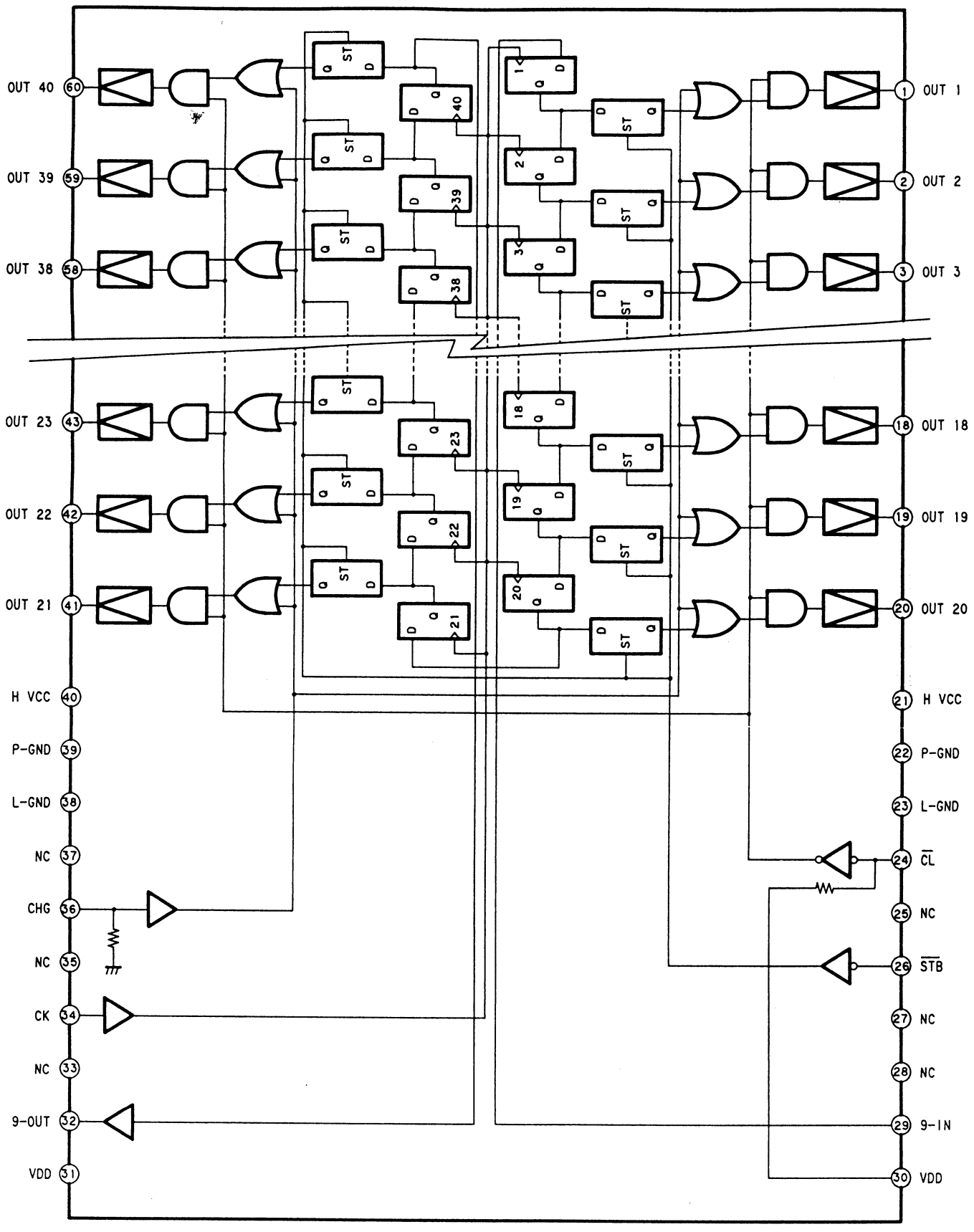


IC502 TC5081AP



• **IC Block Diagram**

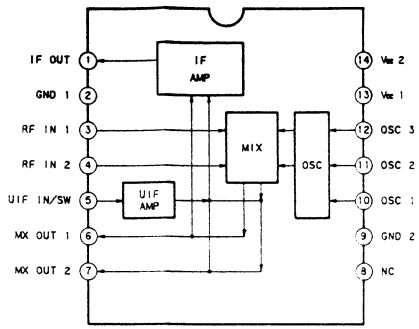
IC702, 703 TD62C950RF



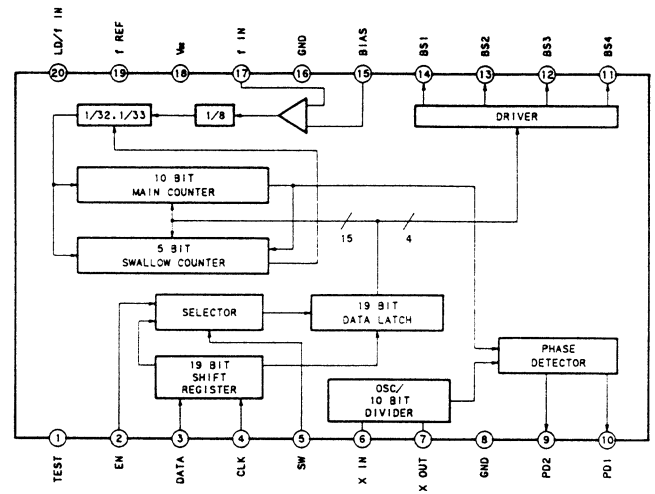
Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- △ : internal component.
- ▬▬ : B+ Line
- ▬ ▬ : B– Line
- Voltage is dc with respect to ground under no-signal (detuned) conditions.
  no mark : POWER ON
  ✳ : Impossible measurement point
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.

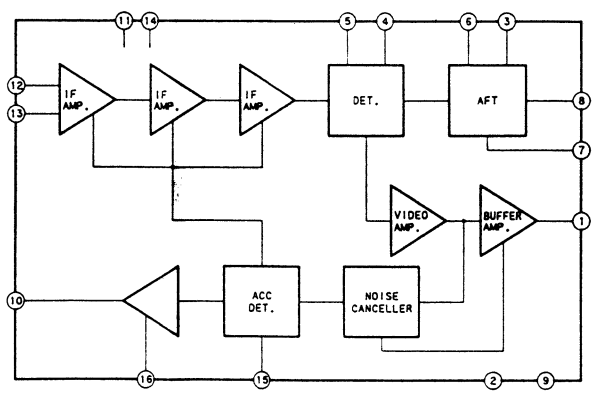
IC201 CXA1125P



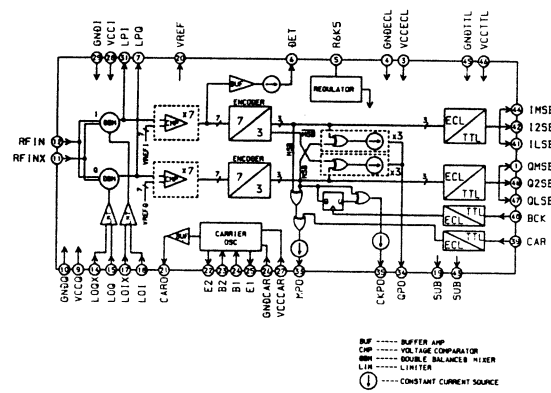
IC202 M54939SP



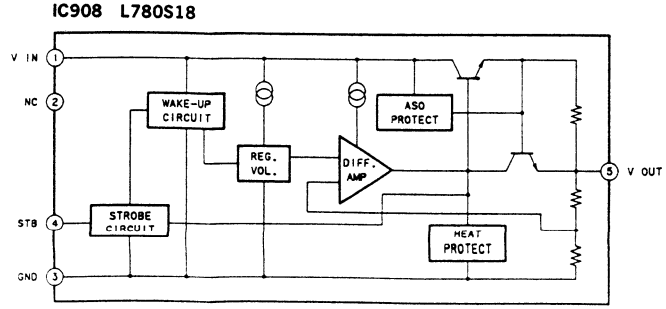
IC203 HA11440A



IC205 CXA1724Q



IC907 L780S15
IC908 L780S18



SECTION 5
EXPLODED VIEWS

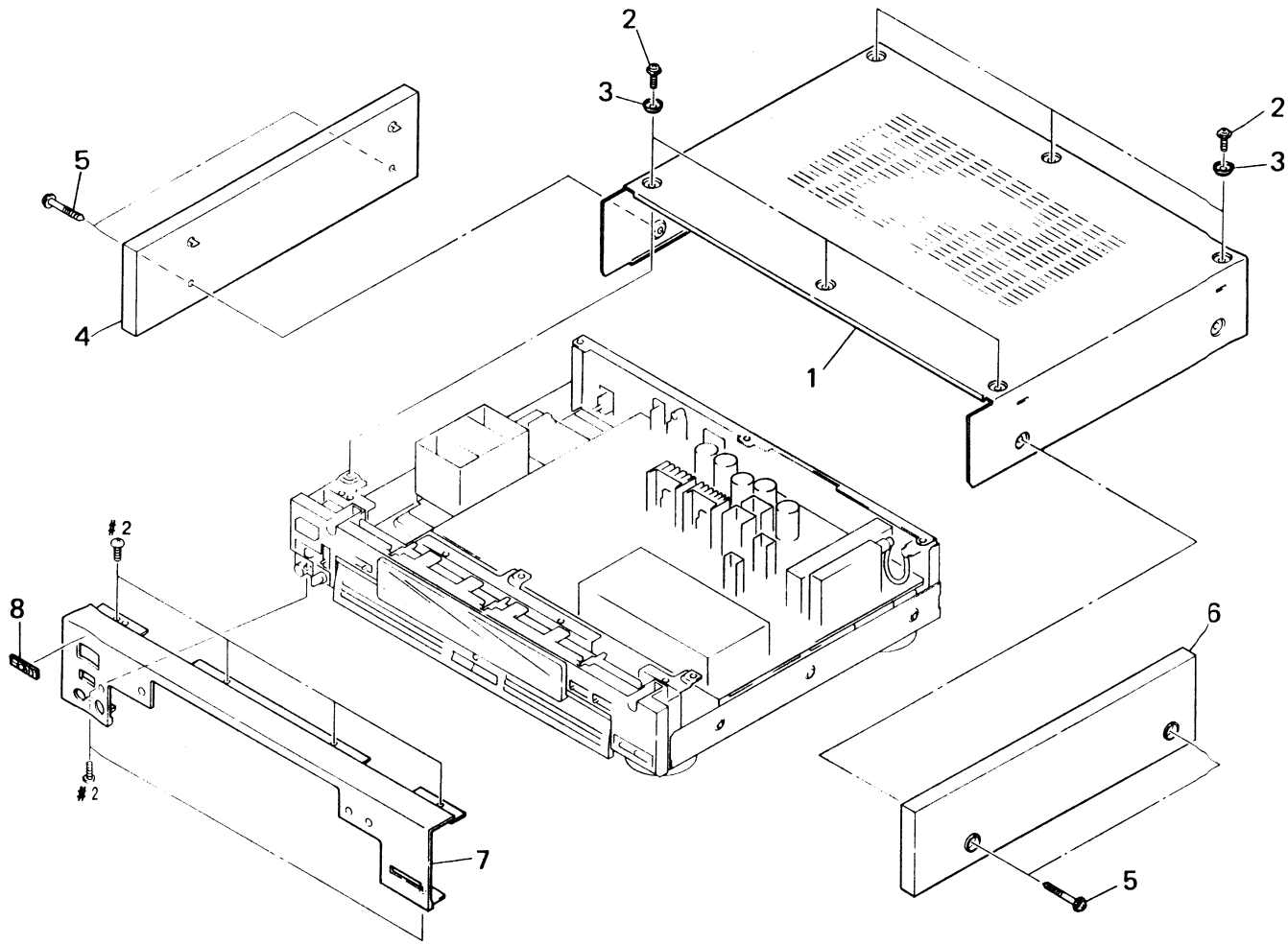
NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example :
  KNOB, BALANCE (WHITE)... (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Hardware (# mark) list is given in the last of this parts list.

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.

- G : Germany model

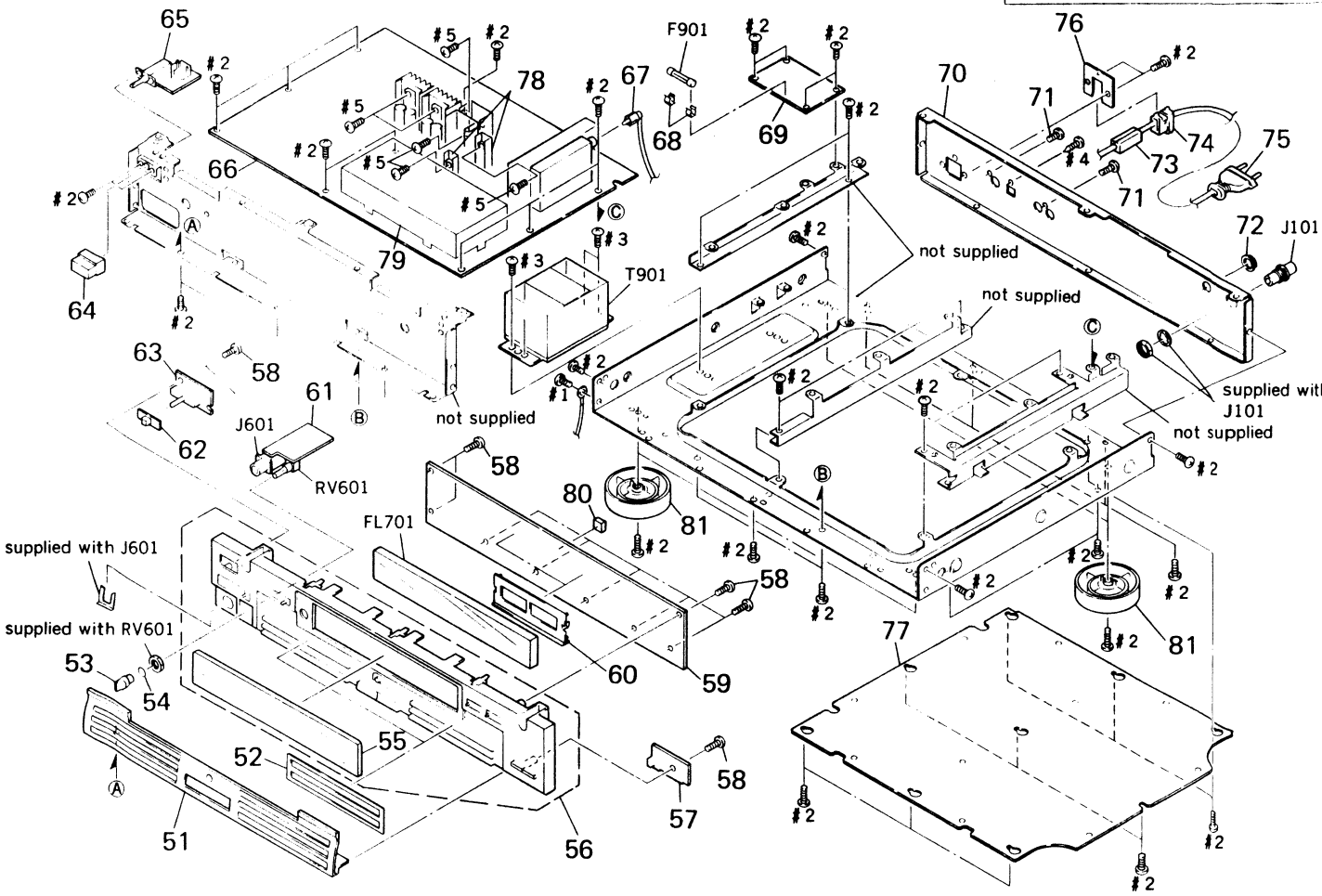
5-1. CABINET SECTION



Ref. No.	Part No.	Description	Remark
1	4-935-802-11	CASE (BLACK)	
* 1	4-935-802-21	CASE (GOLD)	
2	3-704-366-01	SCREW (CASE) (M3X8) (BLACK)	
2	3-704-366-11	SCREW (CASE) (M3X8) (GOLD)	
3	4-923-474-01	RING, ORNAMENTAL (BLACK)	
3	4-923-474-11	RING, ORNAMENTAL (GOLD)	
4	X-4886-045-1	PANEL (L) ASSY, SIDE (AEP:BLACK)	
4	X-4941-416-1	PANEL (L) ASSY, SIDE (G:BLACK)	
4	X-4941-923-1	PANEL (L) ASSY, SIDE (GOLD)	
5	4-933-446-01	SCREW (SIDE PANEL)	
6	X-4886-046-1	PANEL (R) ASSY, SIDE (AEP:BLACK)	
6	X-4941-417-1	PANEL (R) ASSY, SIDE (G:BLACK)	
6	X-4941-924-1	PANEL (R) ASSY, SIDE (GOLD)	
7	4-953-962-01	PANEL, FRONT (BLACK)	
7	4-953-962-11	PANEL, FRONT (GOLD)	
8	4-908-848-01	EMBLEM, SONY (BLACK)	
8	4-908-848-21	EMBLEM, SONY (GOLD)	

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.

5-2. CHASSIS SECTION



Ref.No.	Part No.	Description	Remark
51	4-953-967-02	PANEL (ORNAMENT) (BLACK)	
51	4-953-967-12	PANEL (ORNAMENT) (GOLD)	
* 52	4-955-918-02	SHEET, BLIND	
53	3-354-931-01	KNOB (DIA.10) (BLACK)	
53	3-354-931-31	KNOB (DIA.10) (GOLD)	
54	3-354-981-01	SPRING (SUS), RING	
55	4-953-964-01	WINDOW, TRANSPARENT	
56	X-4942-864-2	PANEL (BASE) ASSY (BLACK)	
56	X-4942-865-2	PANEL (BASE) ASSY (GOLD)	
* 57	1-645-394-11	TUNING BOARD	
58	4-951-620-01	SCREW (2.6X8), +BVTP	
* 59	A-4356-369-A	DISPLAY BOARD, COMPLETE	
* 60	4-952-472-01	HOLDER (S), FL TUBE	
* 61	1-645-397-11	HEADPHONE BOARD	
62	4-931-421-01	KNOB (T & S) (BLACK)	
62	4-931-421-21	KNOB (T & S) (GOLD)	
* 63	1-645-395-11	PGM SW BOARD	
64	4-917-460-01	KNOB, POWER (BLACK)	
64	4-917-460-51	KNOB, POWER (GOLD)	
* 65	1-645-396-11	AC SW BOARD	
* 66	A-4356-375-A	MAIN BOARD, COMPLETE	
* 67	1-555-110-00	CABLE, PIN	

Ref.No.	Part No.	Description	Remark
68	1-533-225-11	HOLDER, FUSE	
* 69	1-645-398-11	AC CONNECT BOARD	
* 70	4-953-966-02	PANEL, BACK (BLACK)	
* 70	4-953-966-12	PANEL, BACK (GOLD)	
71	3-703-685-21	SCREW (+BV 3X8)	
72	3-682-691-00	NUT, WASHER HEXAGON	
73	1-543-827-21	CLAMP, SLEEVE FERRITE	
* 74	3-703-244-00	BUSHING (2104), CORD	
⚠75	1-574-383-11	CORD, POWER	
* 76	4-923-873-01	BRACKET, CORD STOPPER	
* 77	4-908-036-11	PLATE, BOTTOM	
* 78	3-309-144-21	HEAT SINK	
* 79	A-4356-376-A	QPSK BOARD, COMPLETE	
80	9-911-843-XX	CUSHION, RUBBER	
81	X-3304-944-1	FOOT ASSY (BLACK)	
81	X-3363-489-1	FOOT ASSY (GOLD)	
⚠F901	1-532-613-XX	FUSE, TIME-LAG (T200mA)	
FL701	1-519-704-11	INDICATOR TUBE, FLUORESCENT	
J101	1-695-518-11	PLUG, CONVERSION (PAL-RCA) (CABLE)	
J601	1-507-863-51	JACK, PHONE (PHONES)	
RV601	1-238-085-11	RES, VAR, CARBON 20K/20K (PHONES LEVEL)	
⚠T901	1-423-310-11	TRANSFORMER, POWER	

SECTION 6
ELECTRICAL PARTS LIST

AC CONNECT **AC SW** **DISPLAY**

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u:μ, for example:
  uA..: μA.. uPA..: μPA..
  uPB..: μPB.. uPC..: μPC.. uPD..: μPD..
- CAPACITORS
  uF: μF
- COILS
  uH: μH

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board.

- G : Germany model

Ref.No.	Part No.	Description			Remark
*	1-645-398-11	AC CONNECT BOARD			
		**********			
	1-533-225-11	HOLDER, FUSE			
	4-870-539-00	PLATE, GROUND			
		< CAPACITOR >			
⚠C901	1-136-279-11	FILM	0.047uF	20% 250V	
⚠C902	1-161-744-00	CERAMIC	0.01uF	400V	
⚠C998	1-161-742-00	CERAMIC	0.0022uF	20% 400V	
⚠C999	1-161-742-00	CERAMIC	0.0022uF	20% 400V	
		< CONNECTOR >			
CNL901	1-690-122-51	REED (WITH CONNECTOR) (2 CORE)			
* CNP901	1-564-321-00	PIN, CONNECTOR 2P			
* CNP902	1-564-321-00	PIN, CONNECTOR 2P			
		< TRANSFORMER >			
⚠T902	1-421-960-11	TRANSFORMER, LINE FILTER			
**********					
*	1-645-396-11	AC SW BOARD			
		**********			
		< CONNECTOR >			
* CNP906	1-564-321-00	PIN, CONNECTOR 2P			
		< SWITCH >			
⚠S901	1-572-267-21	SWITCH, PUSH (AC POWER) (1 KEY) (POWER)			
**********					
*	A-4356-369-A	DISPLAY BOARD, COMPLETE			
		**********			
*	4-952-472-01	HOLDER (S), FL TUBE			
		< CAPACITOR >			
C701	1-164-159-11	CERAMIC	0.1uF	50V	
C702	1-124-907-11	ELECT	10uF	20% 50V	
C703	1-164-159-11	CERAMIC	0.1uF	50V	
C704	1-164-159-11	CERAMIC	0.1uF	50V	
C705	1-164-159-11	CERAMIC	0.1uF	50V	
C706	1-164-159-11	CERAMIC	0.1uF	50V	
C708	1-162-290-31	CERAMIC	470PF	10% 50V	
		< CONNECTOR >			
CNP701	1-568-662-11	CONNECTOR, BOARD TO BOARD 6P			
* CNP702	1-564-475-11	PIN, CONNECTOR 3P			
* CNP703	1-506-503-61	PIN, CONNECTOR 9P			
* CNP704	1-564-342-11	PIN, CONNECTOR 8P			
* CNP705	1-564-337-00	PIN, CONNECTOR 3P			
		< COMPOSITION CIRCUIT BLOCK >			
CP701	1-232-976-11	COMPOSITION CIRCUIT BLOCK (10KX8)			
		< DIODE >			
D701	8-719-987-63	DIODE 1N4148M			
D702	8-719-015-04	DIODE UZP-8.2BC			
D703	8-719-987-63	DIODE 1N4148M			
		< FLUORESCENT INDICATOR TUBE >			
FL701	1-519-704-11	INDICATOR TUBE, FLUORESCENT			
		< IC >			
IC701	8-759-086-00	IC uPD75108GF-S36-3BE			
IC702	8-759-075-35	IC TD62C950RF			
IC703	8-759-075-35	IC TD62C950RF			
IC704	8-749-920-83	IC GP1U52XB			
		< TRANSISTOR >			
Q701	8-729-900-61	TRANSISTOR DTA114ES			
Q702	8-729-900-80	TRANSISTOR DTC114ES			
		< RESISTOR >			
R701	1-249-405-11	CARBON	100	5% 1/4W	
R702	1-249-429-11	CARBON	10K	5% 1/4W	
R703	1-249-437-11	CARBON	47K	5% 1/4W	
R704	1-249-429-11	CARBON	10K	5% 1/4W	

DISPLAY

Ref.No.	Part No.	Description	Remark
		< SWITCH >	
S701	1-554-303-21	SWITCH, TACTILE (1)	
S702	1-554-303-21	SWITCH, TACTILE (2)	
S703	1-554-303-21	SWITCH, TACTILE (3)	
S704	1-554-303-21	SWITCH, TACTILE (4)	
S705	1-554-303-21	SWITCH, TACTILE (5)	
S706	1-554-303-21	SWITCH, TACTILE (6)	
S707	1-554-303-21	SWITCH, TACTILE (7)	
S708	1-554-303-21	SWITCH, TACTILE (8)	
S709	1-554-303-21	SWITCH, TACTILE (9)	
S710	1-554-303-21	SWITCH, TACTILE (10)	
S711	1-554-303-21	SWITCH, TACTILE (11)	
S712	1-554-303-21	SWITCH, TACTILE (12)	
S713	1-554-303-21	SWITCH, TACTILE (13)	
S714	1-554-303-21	SWITCH, TACTILE (14)	
S715	1-554-303-21	SWITCH, TACTILE (15)	
S716	1-554-303-21	SWITCH, TACTILE (16)	
S717	1-554-303-21	SWITCH, TACTILE (NEWS)	
S718	1-554-303-21	SWITCH, TACTILE (AFFAIRS)	
S719	1-554-303-21	SWITCH, TACTILE (INFO)	
S720	1-554-303-21	SWITCH, TACTILE (SPORT)	
S721	1-554-303-21	SWITCH, TACTILE (EDUCATE)	
S722	1-554-303-21	SWITCH, TACTILE (DRAMA)	
S723	1-554-303-21	SWITCH, TACTILE (CULTURE)	
S724	1-554-303-21	SWITCH, TACTILE (SCIENCE)	
S725	1-554-303-21	SWITCH, TACTILE (VARIED)	
S726	1-554-303-21	SWITCH, TACTILE (POP M)	
S727	1-554-303-21	SWITCH, TACTILE (ROCK M)	
S728	1-554-303-21	SWITCH, TACTILE (M.O.R. M)	
S729	1-554-303-21	SWITCH, TACTILE (LIGHT M)	
S730	1-554-303-21	SWITCH, TACTILE (CLASSICS)	
S731	1-554-303-21	SWITCH, TACTILE (OTHER M)	
S732	1-554-303-21	SWITCH, TACTILE (UNDEFINED)	
S733	1-554-303-21	SWITCH, TACTILE (DISPLAY MODE)	
S734	1-554-303-21	SWITCH, TACTILE (MEMORY)	
S735	1-554-303-21	SWITCH, TACTILE (MHz/CLEAR)	
S736	1-554-303-21	SWITCH, TACTILE (BLOCK +)	
S737	1-554-303-21	SWITCH, TACTILE (BLOCK -)	
S738	1-554-303-21	SWITCH, TACTILE (DIRECT)	
S739	1-554-303-21	SWITCH, TACTILE (LNC)	
S740	1-554-303-21	SWITCH, TACTILE (BALANCE MUSIC)	
S741	1-554-303-21	SWITCH, TACTILE (BALANCE SPEECH)	
S742	1-554-303-21	SWITCH, TACTILE (MONO MODE)	
		< VIBRATOR >	
X701	1-577-359-21	VIBRATOR, CERAMIC (4.19MHz)	

HEADPHONE

Ref.No.	Part No.	Description			Remark
*	1-645-397-11	HEADPHONE BOARD			
		< CAPACITOR >			
C630	1-126-059-11	ELECT	10uF	20%	50V
C631	1-126-059-11	ELECT	10uF	20%	50V
C632	1-162-288-31	CERAMIC	330PF	10%	50V
C633	1-162-288-31	CERAMIC	330PF	10%	50V
C634	1-126-157-11	ELECT	10uF	20%	16V
C635	1-126-012-11	ELECT	470uF	20%	16V
C650	1-161-379-00	CERAMIC	0.01uF	20%	25V
C651	1-161-379-00	CERAMIC	0.01uF	20%	25V
C652	1-164-159-11	CERAMIC	0.1uF		50V
		< CONNECTOR >			
* CNP601	1-564-520-11	PLUG, CONNECTOR 5P			
		< FERRITE BEAD >			
FB604	1-410-397-21	FERRITE BEAD INDUCTOR (1.1uH)			
		< IC >			
IC606	8-759-710-73	IC NJM4580L			
		< JACK >			
J601	1-507-863-51	JACK, PHONE (PHONES)			
		< RESISTOR >			
R645	1-249-432-11	CARBON	18K	5%	1/4W
R646	1-249-432-11	CARBON	18K	5%	1/4W
R647	1-249-422-11	CARBON	2.7K	5%	1/4W
R648	1-249-431-11	CARBON	15K	5%	1/4W
R649	1-249-422-11	CARBON	2.7K	5%	1/4W
R650	1-249-431-11	CARBON	15K	5%	1/4W
R651	1-249-409-11	CARBON	220	5%	1/4W
R652	1-249-409-11	CARBON	220	5%	1/4W
R666	1-247-887-00	CARBON	220K	5%	1/4W
R667	1-247-887-00	CARBON	220K	5%	1/4W
		< VARIABLE RESISTOR >			
RV601	1-238-085-11	RES, VAR, CARBON 20K/20K (PHONES LEVEL)			

MAIN

Ref.No.	Part No.	Description			Remark
*	A-4356-375-A	MAIN BOARD, COMPLETE			
*	1-560-242-11	BUS BAR 3P			
*	1-560-242-21	BUS BAR 4P			
*	1-560-242-31	BUS BAR 5P			
*	1-560-242-81	BUS BAR 8P			
*	3-309-144-21	HEAT SINK			
	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3			
		< CAPACITOR			
C101	1-162-282-31	CERAMIC	100PF	10%	50V
C102	1-162-282-31	CERAMIC	100PF	10%	50V
C103	1-162-282-31	CERAMIC	100PF	10%	50V
C104	1-124-907-11	ELECT	10uF	20%	50V
C105	1-162-294-31	CERAMIC	0.001uF	10%	50V
C106	1-124-907-11	ELECT	10uF	20%	50V
C107	1-162-294-31	CERAMIC	0.001uF	10%	50V
C108	1-124-907-11	ELECT	10uF	20%	50V
C109	1-162-294-31	CERAMIC	0.001uF	10%	50V
C110	1-162-282-31	CERAMIC	100PF	10%	50V
C111	1-162-282-31	CERAMIC	100PF	10%	50V
C112	1-162-282-31	CERAMIC	100PF	10%	50V
C113	1-162-294-31	CERAMIC	0.001uF	10%	50V
C114	1-124-907-11	ELECT	10uF	20%	50V
C115	1-162-280-31	CERAMIC	82PF	10%	50V
C116	1-162-294-31	CERAMIC	0.001uF	10%	50V
C117	1-124-907-11	ELECT	10uF	20%	50V
C118	1-124-767-00	ELECT	2.2uF	20%	50V
C119	1-162-294-31	CERAMIC	0.001uF	10%	50V
C120	1-162-294-31	CERAMIC	0.001uF	10%	50V
C121	1-124-907-11	ELECT	10uF	20%	50V
C122	1-102-961-00	CERAMIC	27PF	5%	50V
C123	1-102-961-00	CERAMIC	27PF	5%	50V
C124	1-161-494-00	CERAMIC	0.022uF		25V
C125	1-161-494-00	CERAMIC	0.022uF		25V
C126	1-162-211-31	CERAMIC	33PF	5%	50V
C301	1-162-294-31	CERAMIC	0.001uF	10%	50V
C302	1-126-023-11	ELECT	100uF	20%	16V
C303	1-162-294-31	CERAMIC	0.001uF	10%	50V
C304	1-124-907-11	ELECT	10uF	20%	50V
C305	1-124-907-11	ELECT	10uF	20%	50V
C307	1-136-173-00	FILM	0.47uF	5%	50V
C308	1-130-471-00	MYLAR	0.001uF	5%	50V
C309	1-161-494-00	CERAMIC	0.022uF		25V
C310	1-162-286-31	CERAMIC	220PF	10%	50V
C311	1-162-286-31	CERAMIC	220PF	10%	50V
C401	1-124-907-11	ELECT	10uF	20%	50V
C402	1-164-159-11	CERAMIC	0.1uF		50V
C403	1-125-486-11	DOUBLE LAYERS	0.22F		5.5V
C404	1-124-907-11	ELECT	10uF	20%	50V
C405	1-164-159-11	CERAMIC	0.1uF		50V
C406	1-164-159-11	CERAMIC	0.1uF		50V
C407	1-162-290-31	CERAMIC	470PF	10%	50V
C408	1-162-290-31	CERAMIC	470PF	10%	50V
C501	1-162-294-31	CERAMIC	0.001uF	10%	50V
C502	1-162-294-31	CERAMIC	0.001uF	10%	50V
C503	1-164-159-11	CERAMIC	0.1uF		50V
C504	1-136-177-00	FILM	1uF	5%	50V
C505	1-124-995-11	ELECT	220uF	20%	10V
C506	1-162-199-31	CERAMIC	10PF	5%	50V
C507	1-164-159-11	CERAMIC	0.1uF		50V
C508	1-161-379-00	CERAMIC	0.01uF	20%	25V
C509	1-162-199-31	CERAMIC	10PF	5%	50V
C510	1-126-049-11	ELECT	22uF	20%	25V
C511	1-162-199-31	CERAMIC	10PF	5%	50V
C512	1-162-211-31	CERAMIC	33PF	5%	50V
C513	1-164-159-11	CERAMIC	0.1uF		50V
C514	1-124-995-11	ELECT	220uF	20%	10V
C515	1-162-294-31	CERAMIC	0.001uF	10%	50V
C517	1-164-159-11	CERAMIC	0.1uF		50V
C518	1-126-022-11	ELECT	47uF	20%	16V
C519	1-164-159-11	CERAMIC	0.1uF		50V
C520	1-126-022-11	ELECT	47uF	20%	16V
C521	1-126-022-11	ELECT	47uF	20%	16V
C522	1-164-159-11	CERAMIC	0.1uF		50V
C523	1-164-159-11	CERAMIC	0.1uF		50V
C601	1-164-159-11	CERAMIC	0.1uF		50V
C602	1-126-023-11	ELECT	100uF	20%	16V
C603	1-164-159-11	CERAMIC	0.1uF		50V
C604	1-126-023-11	ELECT	100uF	20%	16V
C605	1-164-159-11	CERAMIC	0.1uF		50V
C606	1-164-159-11	CERAMIC	0.1uF		50V
C607	1-164-159-11	CERAMIC	0.1uF		50V
C608	1-126-023-11	ELECT	100uF	20%	16V
C609	1-164-159-11	CERAMIC	0.1uF		50V
C610	1-110-339-11	MYLAR	220PF	5%	50V
C611	1-110-339-11	MYLAR	220PF	5%	50V
C612	1-110-339-11	MYLAR	220PF	5%	50V
C613	1-110-339-11	MYLAR	220PF	5%	50V
C614	1-110-340-11	MYLAR	270PF	5%	50V
C615	1-110-340-11	MYLAR	270PF	5%	50V
C616	1-110-340-11	MYLAR	270PF	5%	50V
C617	1-110-340-11	MYLAR	270PF	5%	50V
C618	1-110-335-11	MYLAR	100PF	5%	50V
C619	1-110-335-11	MYLAR	100PF	5%	50V
C620	1-110-335-11	MYLAR	100PF	5%	50V
C621	1-110-335-11	MYLAR	100PF	5%	50V

Ref. No.	Part No.	Description			Remark
*	A-4356-375-A	MAIN BOARD, COMPLETE			
		**********			
*	1-560-242-11	BUS BAR 3P			
*	1-560-242-21	BUS BAR 4P			
*	1-560-242-31	BUS BAR 5P			
*	1-560-242-81	BUS BAR 8P			
*	3-309-144-21	HEAT SINK			
	7-685-646-79	SCREW -BVTP 3X8 TYPE2 IT-3			
		< CAPACITOR >			
C101	1-162-282-31	CERAMIC	100PF	10%	50V
C102	1-162-282-31	CERAMIC	100PF	10%	50V
C103	1-162-282-31	CERAMIC	100PF	10%	50V
C104	1-124-907-11	ELECT	10uF	20%	50V
C105	1-162-294-31	CERAMIC	0.001uF	10%	50V
C106	1-124-907-11	ELECT	10uF	20%	50V
C107	1-162-294-31	CERAMIC	0.001uF	10%	50V
C108	1-124-907-11	ELECT	10uF	20%	50V
C109	1-162-294-31	CERAMIC	0.001uF	10%	50V
C110	1-162-282-31	CERAMIC	100PF	10%	50V
C111	1-162-282-31	CERAMIC	100PF	10%	50V
C112	1-162-282-31	CERAMIC	100PF	10%	50V
C113	1-162-294-31	CERAMIC	0.001uF	10%	50V
C114	1-124-907-11	ELECT	10uF	20%	50V
C115	1-162-280-31	CERAMIC	82PF	10%	50V
C116	1-162-294-31	CERAMIC	0.001uF	10%	50V
C117	1-124-907-11	ELECT	10uF	20%	50V
C118	1-124-767-00	ELECT	2.2uF	20%	50V
C119	1-162-294-31	CERAMIC	0.001uF	10%	50V
C120	1-162-294-31	CERAMIC	0.001uF	10%	50V
C121	1-124-907-11	ELECT	10uF	20%	50V
C122	1-102-961-00	CERAMIC	27PF	5%	50V
C123	1-102-961-00	CERAMIC	27PF	5%	50V
C124	1-161-494-00	CERAMIC	0.022uF		25V
C125	1-161-494-00	CERAMIC	0.022uF		25V
C126	*1-162-211-31	CERAMIC	33PF	5%	50V
C301	1-162-294-31	CERAMIC	0.001uF	10%	50V
C302	1-126-023-11	ELECT	100uF	20%	16V
C303	1-162-294-31	CERAMIC	0.001uF	10%	50V
C304	1-124-907-11	ELECT	10uF	20%	50V
C305	1-124-907-11	ELECT	10uF	20%	50V
C307	1-136-173-00	FILM	0.47uF	5%	50V
C308	1-130-471-00	MYLAR	0.001uF	5%	50V
C309	1-161-494-00	CERAMIC	0.022uF		25V
C310	1-162-286-31	CERAMIC	220PF	10%	50V
C311	1-162-286-31	CERAMIC	220PF	10%	50V
C401	1-124-907-11	ELECT	10uF	20%	50V
C402	1-164-159-11	CERAMIC	0.1uF		50V

Ref. No.	Part No.	Description			Remark
C403	1-125-486-11	DOUBLE LAYERS	0.22F		5.5V
C404	1-124-907-11	ELECT	10uF	20%	50V
C405	1-164-159-11	CERAMIC	0.1uF		50V
C406	1-164-159-11	CERAMIC	0.1uF		50V
C407	1-162-290-31	CERAMIC	470PF	10%	50V
C408	1-162-290-31	CERAMIC	470PF	10%	50V
C501	1-162-294-31	CERAMIC	0.001uF	10%	50V
C502	1-162-294-31	CERAMIC	0.001uF	10%	50V
C503	1-164-159-11	CERAMIC	0.1uF		50V
C504	1-136-177-00	FILM	1uF	5%	50V
C505	1-124-995-11	ELECT	220uF	20%	10V
C506	1-162-199-31	CERAMIC	10PF	5%	50V
C507	1-164-159-11	CERAMIC	0.1uF		50V
C508	1-161-379-00	CERAMIC	0.01uF	20%	25V
C509	1-162-199-31	CERAMIC	10PF	5%	50V
C510	1-126-049-11	ELECT	22uF	20%	25V
C511	1-162-199-31	CERAMIC	10PF	5%	50V
C512	1-162-211-31	CERAMIC	33PF	5%	50V
C513	1-164-159-11	CERAMIC	0.1uF		50V
C514	1-124-995-11	ELECT	220uF	20%	10V
C515	1-162-294-31	CERAMIC	0.001uF	10%	50V
C517	1-164-159-11	CERAMIC	0.1uF		50V
C518	1-126-022-11	ELECT	47uF	20%	16V
C519	1-164-159-11	CERAMIC	0.1uF		50V
C520	1-126-022-11	ELECT	47uF	20%	16V
C521	1-126-022-11	ELECT	47uF	20%	16V
C522	1-164-159-11	CERAMIC	0.1uF		50V
C523	1-164-159-11	CERAMIC	0.1uF		50V
C601	1-164-159-11	CERAMIC	0.1uF		50V
C602	1-126-023-11	ELECT	100uF	20%	16V
C603	1-164-159-11	CERAMIC	0.1uF		50V
C604	1-126-023-11	ELECT	100uF	20%	16V
C605	1-164-159-11	CERAMIC	0.1uF		50V
C606	1-164-159-11	CERAMIC	0.1uF		50V
C607	1-164-159-11	CERAMIC	0.1uF		50V
C608	1-126-023-11	ELECT	100uF	20%	16V
C609	1-164-159-11	CERAMIC	0.1uF		50V
C610	1-110-339-11	MYLAR	220PF	5%	50V
C611	1-110-339-11	MYLAR	220PF	5%	50V
C612	1-110-339-11	MYLAR	220PF	5%	50V
C613	1-110-339-11	MYLAR	220PF	5%	50V
C614	1-110-340-11	MYLAR	270PF	5%	50V
C615	1-110-340-11	MYLAR	270PF	5%	50V
C616	1-110-340-11	MYLAR	270PF	5%	50V
C617	1-110-340-11	MYLAR	270PF	5%	50V
C618	1-110-335-11	MYLAR	100PF	5%	50V
C619	1-110-335-11	MYLAR	100PF	5%	50V
C620	1-110-335-11	MYLAR	100PF	5%	50V
C621	1-110-335-11	MYLAR	100PF	5%	50V

Ref. No.	Part No.	Description	Remark
D923	8-719-933-41	DIODE HZS6C3L	
D924	8-719-933-41	DIODE HZS6C3L	
D925	8-719-985-53	DIODE HZS4ALL	
D926	8-719-987-63	DIODE 1N4148M	
D927	8-719-987-63	DIODE 1N4148M	
D928	8-719-987-63	DIODE 1N4148M	
D929	8-719-987-63	DIODE 1N4148M	
		< FERRITE BEAD >	
FB601	1-410-397-21	FERRITE BEAD INDUCTOR (1.1uH)	
FB602	1-410-397-21	FERRITE BEAD INDUCTOR (1.1uH)	
FB603	1-410-397-21	FERRITE BEAD INDUCTOR (1.1uH)	
		< FRONT END >	
FE101	1-693-197-11	TUNER, ET 3TP-RG402)	
FE102	1-693-195-11	FRONT END DSR) (SATELLITE 1ST IF)	
		< IC >	
IC101	8-759-820-91	IC LC7218	
IC301	8-759-086-02	IC CXD8423Q	
IC302	8-759-745-61	IC NJM4560D-D	
IC401	8-759-086-01	IC uPD78013GC-504-AB8	
IC402	8-759-927-29	IC SN74HCU04ANS	
IC501	8-752-342-65	IC CXD2560M	
IC502	8-759-250-81	IC TC5081AP	
IC503	8-759-917-11	IC SN74HC393AN	
IC504	8-759-917-18	IC SN74HCU04AN	
IC505	8-759-916-12	IC SN74HC00AN	
IC506	8-749-923-04	IC TOTX178 (DIGITAL OUT OPTICAL)	
IC601	8-759-044-10	IC CXD2562Q	
IC602	8-759-982-03	IC RC5532DD	
IC603	8-759-982-03	IC RC5532DD	
IC604	8-759-982-03	IC RC5532DD	
IC605	8-759-982-03	IC RC5532DD	
IC901	8-759-231-58	IC TA7812S	
IC902	8-759-245-86	IC TA7912S	
IC903	8-759-604-35	IC M5F78M05	
IC904	8-759-231-53	IC TA7805S	
IC905	8-759-231-58	IC TA7812S	
IC906	8-759-604-45	IC M5F79M12	
IC907	8-759-802-24	IC L780S15	
IC908	8-759-802-25	IC L780S18	
		< COIL >	
L101	1-410-316-11	INDUCTOR 1uH	
L102	1-410-316-11	INDUCTOR 1uH	
L103	1-410-316-11	INDUCTOR 1uH	
L104	1-410-316-11	INDUCTOR 1uH	
L301	1-410-316-11	INDUCTOR 1uH	

Ref. No.	Part No.	Description	Remark
L401	1-410-324-11	INDUCTOR 4.7uH	
L501	1-410-324-11	INDUCTOR 4.7uH	
L502	1-410-324-11	INDUCTOR 4.7uH	
L503	1-410-324-11	INDUCTOR 4.7uH	
L504	1-410-324-11	INDUCTOR 4.7uH	
L505	1-410-324-11	INDUCTOR 4.7uH	
L506	1-410-324-11	INDUCTOR 4.7uH	
L507	1-402-677-11	COIL	
L601	1-410-324-11	INDUCTOR 4.7uH	
		< JACK >	
PJ501	1-568-750-21	JACK, PIN (1P SHIELD TYPE) (DIGITAL OUT COAXIAL)	
PJ601	1-568-751-61	JACK, PIN (2P SHIELD TYPE) (LINE OUT)	
		< IC LINK >	
⚠PS902	1-532-839-11	LINK, IC (PRF1000) (1A)	
		< TRANSISTOR >	
Q101	8-729-115-28	TRANSISTOR BN1L3Z-K	
Q102	8-729-115-28	TRANSISTOR BN1L3Z-K	
Q103	8-729-230-45	TRANSISTOR 2SC2458-YGR	
Q104	8-729-900-63	TRANSISTOR DTA124ES	
Q105	8-729-200-56	TRANSISTOR 2SK241-GR	
Q501	8-729-200-56	TRANSISTOR 2SK241-GR	
Q502	8-729-200-56	TRANSISTOR 2SK241-GR	
Q601	8-729-900-61	TRANSISTOR DTA114ES	
Q602	8-729-141-30	TRANSISTOR 2SC3623A-LK	
Q603	8-729-141-30	TRANSISTOR 2SC3623A-LK	
Q604	8-729-900-61	TRANSISTOR DTA114ES	
Q605	8-729-900-61	TRANSISTOR DTA114ES	
Q606	8-729-231-55	TRANSISTOR 2SC2878-AB	
Q607	8-729-231-55	TRANSISTOR 2SC2878-AB	
Q608	8-729-900-80	TRANSISTOR DTC114ES	
Q901	8-729-209-15	TRANSISTOR 2SD2012	
Q902	8-729-209-15	TRANSISTOR 2SD2012	
Q903	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q904	8-729-209-15	TRANSISTOR 2SD2012	
Q905	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q906	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q907	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q908	8-729-900-63	TRANSISTOR DTA124ES	
Q909	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q910	8-729-900-89	TRANSISTOR DTC144ES	
		< RESISTOR >	
R101	1-249-409-11	CARBON 220 5% 1/4W	
R102	1-249-409-11	CARBON 220 5% 1/4W	
R103	1-249-409-11	CARBON 220 5% 1/4W	

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.

DAR-1000ES

SONY®
SERVICE MANUAL

AEP Model

SUPPLEMENT-1

File this supplement with the service manual.

1. CIRCUIT BOARDS LOCATION
2. BLOCK DIAGRAM
3. CORRECTION OF SCHEMATIC DIAGRAM

Ref. No.	Part No.	Description	Remark

HARDWARE LIST

#1	7-685-870-01	SCREW +BVTT 3X5	
#2	7-682-548-09	SCREW +BVTT 3X8 (S)	
#3	7-682-547-04	SCREW +BVTT 3X6 (S)	
#4	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
#5	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3	

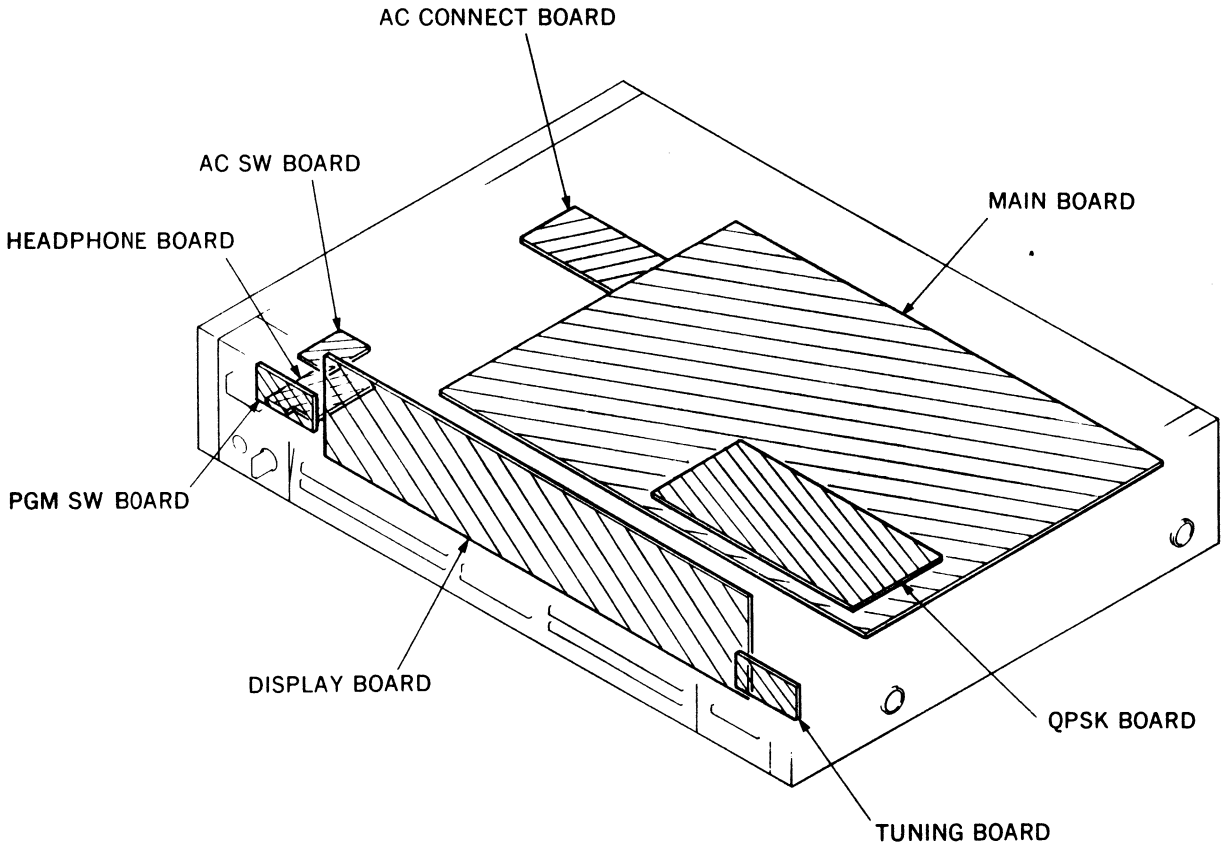
9-957-430-11

Sony Corporation
Audio Group

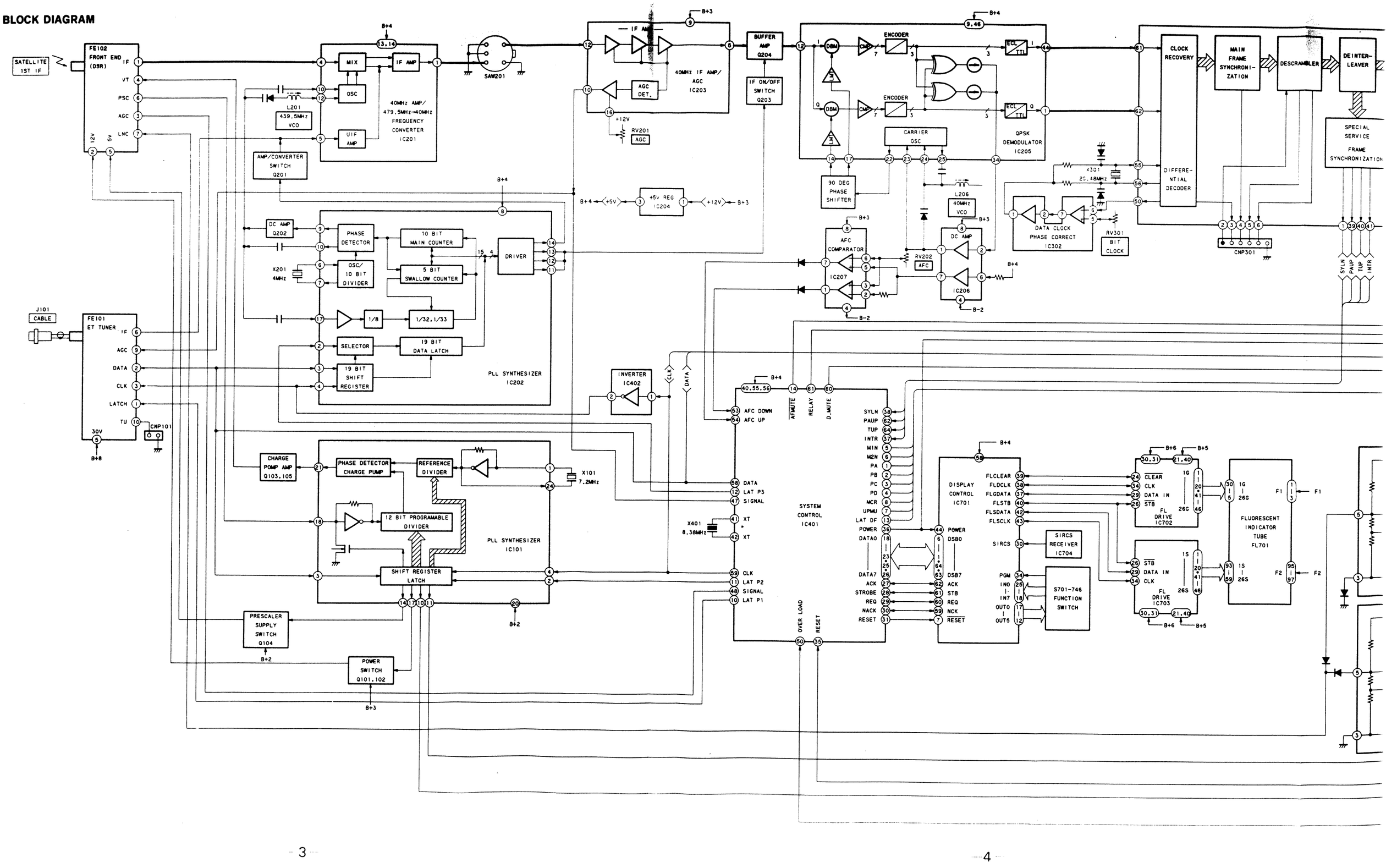
English
9210450-1
Printed in Japan
© 1992.9

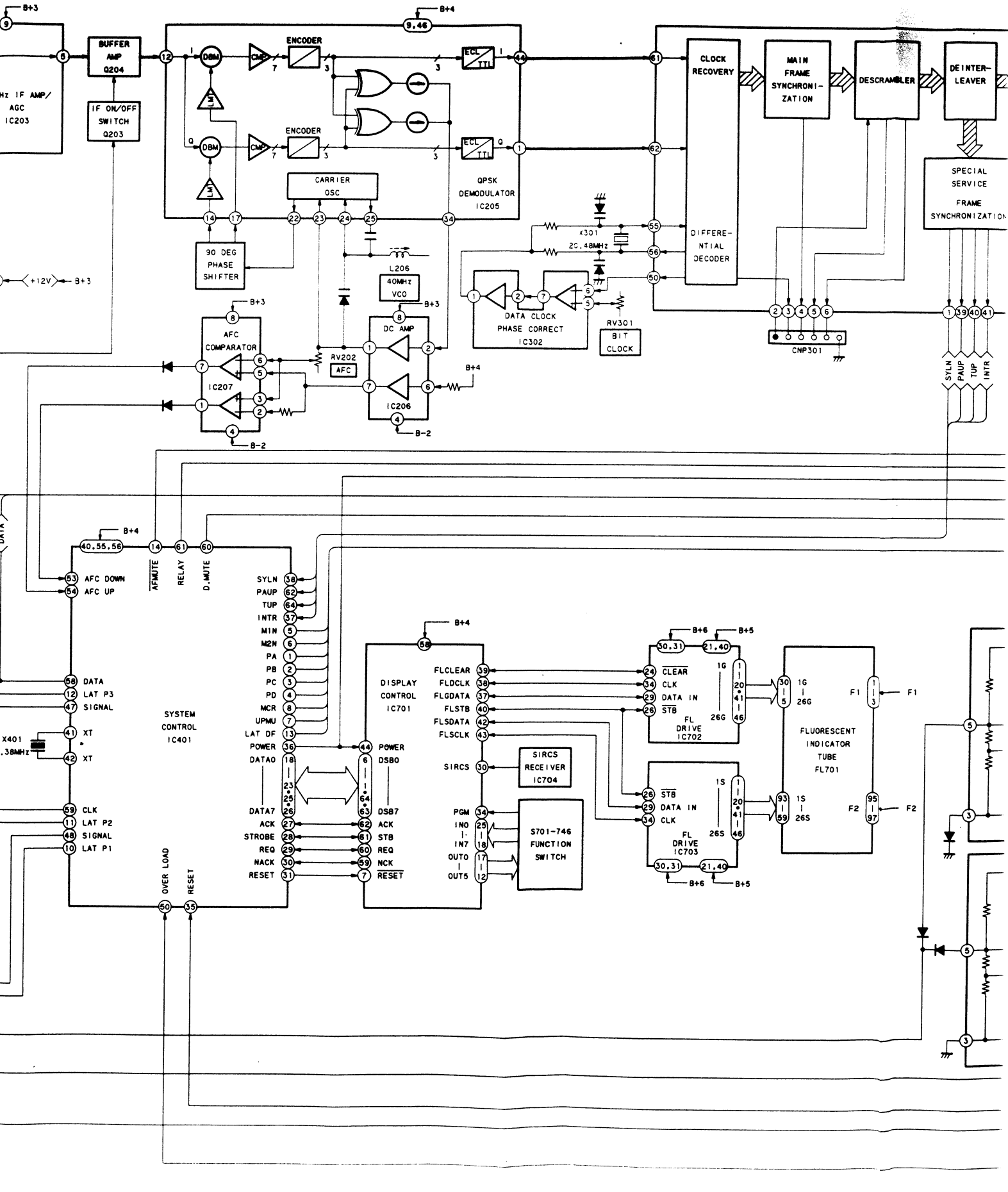
Published by Customer Relations and Service Group

CIRCUIT BOARDS LOCATION

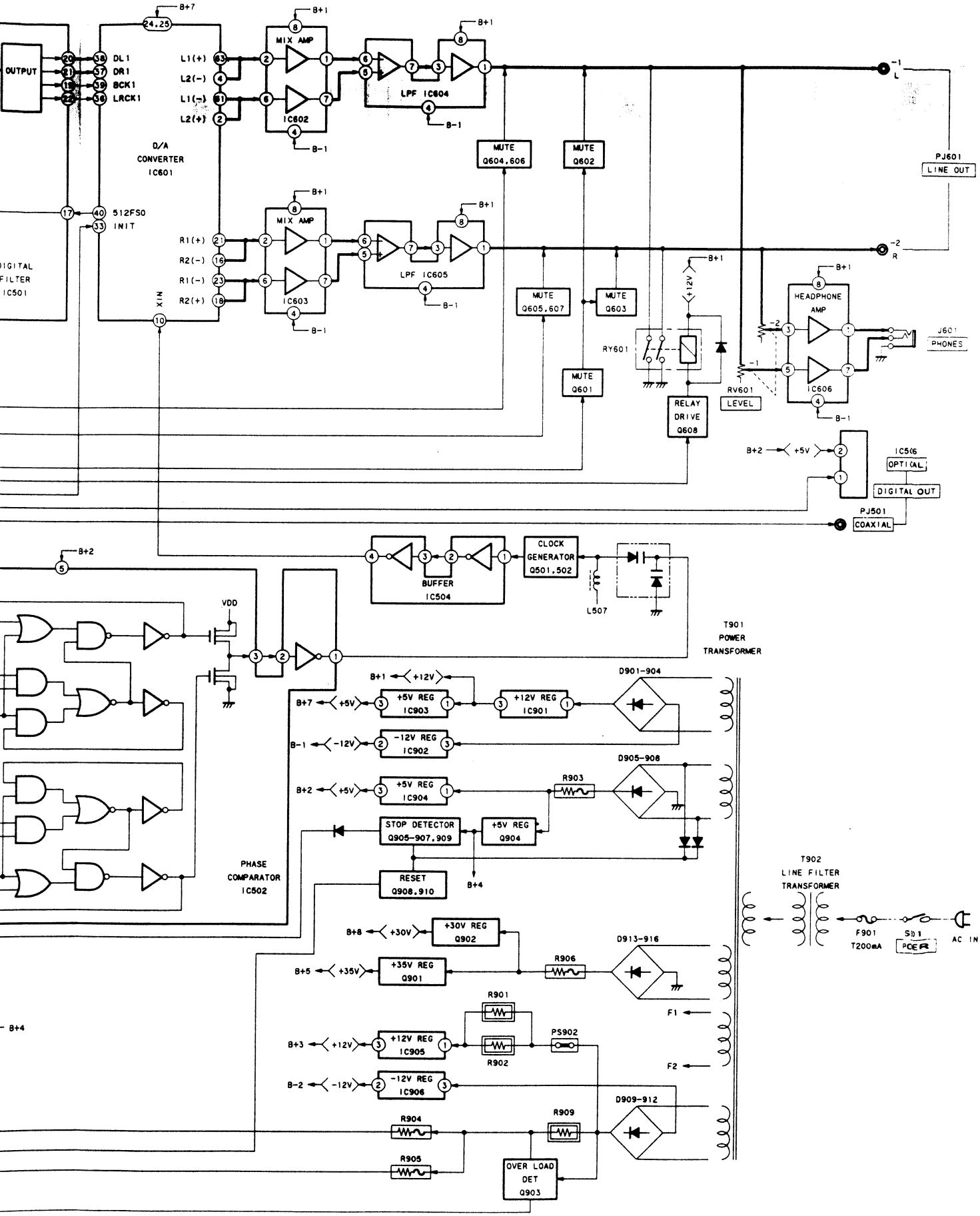


BLOCK DIAGRAM




BUFFER AMP Q204
IF ON/OFF SWITCH Q203
ENCODER
DBM
CMP
ECL TTL
QPSK DEMODULATOR IC205
CARRIER OSC
90 DEG PHASE SHIFTER
L206
40MHz VCO
AFC COMPARATOR
IC207
DC AMP
IC206
RV202 AFC
x301
20.48MHz
DATA CLOCK PHASE CORRECT IC302
RV301 BIT CLOCK
DIFFERENTIAL DECODER
CLOCK RECOVERY
MAIN FRAME SYNCHRONIZATION
DESCRAMBLER
DEINTERLEAVER
SPECIAL SERVICE FRAME SYNCHRONIZATION
CNP301
SYLN
PAUP
TUP
INTR
SYSTEM CONTROL IC401
DISPLAY CONTROL IC701
SIRCS RECEIVER IC704
S701-746 FUNCTION SWITCH
FL DRIVE IC702
FL DRIVE IC703
FLUORESCENT INDICATOR TUBE FL701
AFMUTE
RELAY
D.MUTE
OVER LOAD
RESET
AFC DOWN
AFC UP
DATA
LAT P3
SIGNAL
XT
LAT P2
LAT P1
POWER
DSB0
ACK
STB
REQ
NCK
CLEAR
CLK
DATA IN
FLCLEAR
FLDCLK
FLGDATA
FLSTB
FLSDATA
FLSCLK
SIRCS
PGM
INO
IN7
OUTO
OUT5
F1
F2
B+3
B+4
B+5
B+6
B-2

MAIN FRAME SYNCHRONI-ZATION
DESCRAMBLER
DEINTER-LEAVER
BCH(63,44) ERROR CORRECTION
14↔16BIT DATA EXPAND
AUDIO DATA INTERPOLATOR
AUDIO DATA for D/A CONVERTER OUTPUT
SPECIAL SERVICE FRAME SYNCHRONIZATION
DIGITAL AUDIO INTERFACE
VOICE PCM DEMODULATOR IC301
CNP301
SYLN PAUP TUP INTR
MIN MZN PA PB PC PD MCK
UPMU
INPUT
DATA RAM
MPY
ACC
O.F.L.
OFFSET
OUTPUT
N.S
ATT
DOEF ROM
MODE
TIMING
LAT DF CLK DATA
DIGITAL FILTER IC501
DL1 DR1 BCK1 LRCK1
512FSO INIT
XIN
D/A CONVERTER IC601
L1(+) L2(-) L1(-) L2(+)
R1(+) R2(-) R1(-) R2(+)
MIX AMP
IC602
IC603
LPF IC604
LPF IC605
MUTE Q604,606
MUTE Q602
MUTE Q605,607
MUTE Q603
MUTE Q601
RY601
RELAY DRIVE Q608
RV601 LEVEL
HEADPHONE AMP
IC606
PJ601 LINE OUT
PHONES
J601
IC506 OPTICAL
DIGITAL OUT
PJ501 COAXIAL
DIGITAL MUTE IC505
COUNTER IC503
1CLK 1QC 2CLK 2QD
PHASE COMPARATOR IC502
VDD
BUFFER IC504
CLOCK GENERATOR Q501,502
L507
T901 POWER TRANSFORMER
D901-904
+5V REG IC903
+12V REG IC901
-12V REG IC902
D905-908
+5V REG IC904
R903
STOP DETECTOR Q905-907,909
+5V REG Q904
RESET Q908,910
T902 LINE FILTER TRANSFORMER
F901 T200mA
S901 POWER
AC IN
+30V REG Q902
+35V REG Q901
D913-916
R906
R901
R902
PS902
+12V REG IC905
-12V REG IC906
D909-912
R904
R905
R909
OVER LOAD DET Q903
SWITCH Q701,702
FLUORESCENT INDICATOR TUBE FL701
1G 26G
1S 26S
F1
F2
ASO PROTECT
WAKE-UP CIRCUIT
REG. VOL.
DIFF AMP
STROBE CIRCUIT
HEAT PROTECT
LNC POWER IC908
LNC POWER IC907


OUTPUT
DL1
DR1
BCK1
LRCK1
L1(+)
L2(-)
L1(-)
L2(+)
D/A CONVERTER IC601
MIX AMP
IC602
LPF IC604
MUTE Q604,606
MUTE Q602
PJ601 LINE OUT
512FSO
INIT
R1(+)
R2(-)
R1(-)
R2(+)
XIN
IC603
LPF IC605
MUTE Q605,607
MUTE Q603
MUTE Q601
RY601
RELAY DRIVE Q608
RV601 LEVEL
HEADPHONE AMP
IC606
J601 PHONES
IC506 OPTICAL
DIGITAL OUT
PJ501 COAXIAL
BUFFER IC504
CLOCK GENERATOR Q501,502
L507
VDD
PHASE COMPARATOR IC502
T901 POWER TRANSFORMER
+5V REG IC903
+12V REG IC901
-12V REG IC902
+5V REG IC904
R903
STOP DETECTOR Q905-907,909
+5V REG Q904
RESET Q908,910
D901-904
D905-908
+30V REG Q902
+35V REG Q901
R906
D913-916
R901
R902
PS902
+12V REG IC905
-12V REG IC906
R904
R905
R909
OVER LOAD DET Q903
D909-912
T902 LINE FILTER TRANSFORMER
F901 T200mA
S901 POWER
AC IN
F1
F2

CORRECTION

☛ : indicates corrected portions.

Page	INCORRECT	CORRECT
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